

December 31, 2002

RE: Steel Dynamics, Inc
TO: Interested Parties / Applicant

033-15836-0043

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision - Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3-7 and IC 13-15-6-1(b) require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, ISTA Building, 150 W. Market Street, Suite 618, Indianapolis, Indiana 46204, **within thirty (30) days from the date of this notice**. The filing for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) the date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision or other order for which you seek review by permit number, the name of the applicant, location, the date of this notice, and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for consideration at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

(over)

Pursuant to 326 IAC 2-7-18(d), any person may petition the U.S. EPA to object to the issuance of a Title V operating permit or modification within sixty (60) days of the end of the forty-five (45) day EPA review period. Such an objection must be based only on issues that were raised with reasonable specificity during the public comment period, unless the petitioner demonstrates that it was impracticable to raise such issues, or if the grounds for such objection arose after the comment period.

To petition the U.S. EPA to object to the issuance of a Title V operating permit, contact:

U.S. Environmental Protection Agency
Administrator, Christine Todd Whitman
401 M Street
Washington, D.C. 20406

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures

FNTVOP.WPD
8-21-02



Frank O'Bannon
Governor

Lori F. Kaplan
Commissioner

100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.in.gov/idem

PART 70 SIGNIFICANT SOURCE MODIFICATION

OFFICE OF AIR QUALITY

Steel Dynamics, Inc.
4500 County Road 59,
Butler, Indiana 46721

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this approval.

This approval is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Significant Source Modification No.: 033-15836-00043	
Original signed by Paul Dubenetzky Issued by: Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date: December 31, 2002

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SECTION A

SOURCE SUMMARY

This approval is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the emission units contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this approval pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates a stationary steel manufacturing plant.

Responsible Official:	Vice President / Plant Manager
Source Address:	4500 County Road 59, Butler, Indiana 46721
Mailing Address:	4500 County Road 59, Butler, Indiana 46721
General Source Phone Number:	219-868-8000
SIC Code:	3312
County Location:	DeKalb
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Permit Program
	Major Source, under PSD Rules
	1 of 28 Source Categories

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This modification to a stationary source is approved to make the following changes to the existing emission units and pollution control devices:

- (1) One (1) 2-side, 2-coat coil coating line using roll coating method, with a nominal capacity of 55,000 pounds per hour of the flat rolled painted steel, using a 44 million Btu per hour capacity burner equipped thermal oxidizer to control VOC emissions and exhausting to stack 78.
- (2) Two (2) curing ovens, each with a nominal heat input capacity of 22 million Btu/hour capacity using a 44 million Btu per hour capacity burner equipped thermal oxidizer to control VOC emissions and exhausting to stack 78.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

This modification to a stationary source does not involve any insignificant activities, as defined in 326 IAC 2-7-1(21).

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION B GENERAL CONSTRUCTION CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Effective Date of the Permit [IC13-15-5-3]

Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

B.3 Revocation of Permits [326 IAC 2-1.1-9(5)][326 IAC 2-7-10.5(i)]

Pursuant to 326 IAC 2-1.1-9(5)(Revocation of Permits), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

B.4 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

- (a) The attached affidavit of construction or its equivalent shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application. The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.
- (b) If actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.
- (c) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
- (d) The Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

B.5 NSPS Reporting Requirement

Pursuant to the New Source Performance Standards (NSPS), Part 60.460, Subpart TT, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:

- (a) Commencement of construction date (no later than 30 days after such date);
- (b) Anticipated start-up date (not more than 60 days or less than 30 days prior to such date);
- (c) Actual start-up date (within 15 days after such date); and
- (d) Date of performance testing (at least 30 days prior to such date), when required by a condition elsewhere in this permit.

Reports are to be sent to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, IN 46206-6015

The application and enforcement of these standards have been delegated to the IDEM, OAQ.
The requirements of 40 CFR Part 60 are also federally enforceable.

SECTION C GENERAL OPERATION CONDITIONS

C.1 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

- (a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.
- (b) One (1) certification shall be included, using the attached Certification Form, or its equivalent, with each submittal requiring certification.
- (c) A responsible official is defined at 326 IAC 2-7-1(34).

C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1), (3) and (13)] [326 IAC 2-7-6 (6)] [326 IAC 1-6-3]

- (a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) within ninety (90) days of commencement of operation, including the following information on each facility and its control device:
 - (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;
 - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

The PMP does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) The Permittee shall implement the PMPs as necessary to ensure that failure to implement a PMP does not cause or contribute to a violation of any limitation on emissions or potential to emit.
- (c) A copy of the PMPs shall be submitted to IDEM, OAQ, upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. IDEM, OAQ, may require the Permittee to revise its PMPs whenever lack of proper maintenance causes or contributes to any violation.
- (d) Records of preventive maintenance shall be retained for a period of at least five (5) years. These records shall be kept at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

C.3 Inspection and Entry [326 IAC 2-7-6]

Upon presentation of proper identification cards, credentials, and other documents as may be required by law, and subject to the Permittee's right under all applicable laws and regulations to assert that the information collected by the agency is confidential and entitled to be treated as such, the Permittee shall allow IDEM, OAQ, U.S. EPA, or an authorized representative to perform the following:

- (a) Enter upon the Permittee's premises where a Part 70 source is located, or emissions related activity is conducted, or where records must be kept under the conditions of this approval;
- (b) Have access to and copy, at reasonable times, any records that must be kept under this title or the conditions of this approval or any operating permit revisions;
- (c) Inspect, at reasonable times, any processes, emissions units (including monitoring and air pollution control equipment), practices, or operations regulated or required under this approval or any operating permit revisions;
- (d) Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this approval or applicable requirements; and
- (e) Utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of assuring compliance with this approval or applicable requirements.

C.4 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.5 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.6 Operation of Equipment [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule, or in this permit, all air pollution control equipment listed in this permit and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

Testing Requirements [326 IAC 2-7-6(1)]

C.7 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

- (a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after issuance of the validation letter, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this approval, shall be submitted to:

Indiana Department of Environmental Management

Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ within forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, if the source submits to IDEM, OAQ, a reasonable written explanation no later than five (5) days prior to the end of the initial forty-five (45) day period. The test report requires certification by the "responsible official". The extension request described in this condition does not require certification by the "responsible official". The responsible official is as defined by 326 IAC 2-7-1(34).

Compliance Requirements [326 IAC 2-1.1-11]

C.8 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]

C.9 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

If required by Section D, all monitoring and record keeping requirements shall be implemented when operation begins. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

C.10 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Except as provided elsewhere in this approval ~~Any~~ any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ

C.11 Pressure Gauge and Other Instrument Specifications [326 IAC 2-1.1-11] [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

Whenever a condition in this permit requires the measurement of pressure drop across any part of the unit or its control device, the gauge employed shall have a scale such that the expected normal reading shall be no less than twenty percent (20%) of full scale and be accurate within plus or minus two percent ($\pm 2\%$) of full scale reading.

Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

C.12 Compliance Response Plan - Preparation, Implementation, Records, and Reports [326 IAC 2-7-5] [326 IAC 2-7-6]

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- (a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. A CRP shall be submitted to IDEM, OAQ upon request. The CRP shall be prepared before the affidavit of construction is submitted to the IDEM, supplemented from time to time by the Permittee, maintained on site, and comprised of:

- (1) Reasonable response steps that may be implemented in the event that a response step is needed pursuant to the requirements of Section D of this permit; and an expected timeframe for taking reasonable response steps.
 - (2) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan and the Permittee documents such response in accordance with subsection (e) below, the Permittee shall amend its Compliance Response Plan to include such response steps taken.
- (b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:
 - (1) If none of the reasonable response steps listed in the Compliance Response Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional response steps as expeditiously as practical. Taking such additional response steps shall not be considered a deviation from this permit so long as the Permittee documents such response steps in accordance with this condition.
 - (2) If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, the IDEM, OAQ shall be promptly notified of the expected date of the shut down, the status of the applicable compliance monitoring parameter with respect to normal, and the results of the actions taken up to the time of notification.
 - (3) Failure to take reasonable response steps shall constitute a violation of the permit.
- (c) The Permittee is not required to take any further response steps for any of the following reasons:
 - (1) A false reading occurs due to the malfunction of the monitoring equipment and prompt action was taken to correct the monitoring equipment.
 - (2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for a minor permit modification to the permit, and such request has not been denied.
 - (3) An automatic measurement was taken when the process was not operating.
 - (4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.
- (d) The Permittee shall record all instances when response steps are taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.
- (e) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.

C.13 Emergency Provisions [326 IAC 2-7-16]

- (a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.
- (b) Pursuant to 326 IAC 2-7-16 (b) an emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:

- (1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;
- (2) The permitted facility was at the time being properly operated;
- (3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;
- (4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or

Telephone Number: 317-233-5674 (ask for Compliance Section)

Facsimile Number: 317-233-5967

- (5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

- (A) A description of the emergency;
- (B) Any steps taken to mitigate the emissions; and
- (C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (6) The Permittee immediately took all reasonable steps to correct the emergency.
- (c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an

emergency has the burden of proof.

- (d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.
- (e) IDEM, OAQ may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4-(c)(10) be revised in response to an emergency.
- (f) Failure to notify IDEM, OAQ by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.
- (g) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]

- (a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, not later than thirty (30) days after receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.
- (b) A retest to demonstrate compliance shall be performed not later than one hundred twenty (120) days after receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.
- (c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

The documents submitted pursuant to this condition do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

C.15 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

- (a) Records of all required data, reports and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.
- (b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented when the new or modified equipment begins normal operation.

C.16 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

- (a) The source shall submit the attached Quarterly Deviation and Compliance Monitoring Report or its equivalent. Any deviation from permit requirements, the date(s) of each

deviation, the cause of the deviation, and the response steps taken must be reported. This report shall be submitted not later than thirty (30) days after the end of the reporting period. The Quarterly Deviation and Compliance Monitoring Report shall include the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) The report required in (a) of this condition and reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

- (c) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ on or before the date it is due.
- (d) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted no later than thirty (30) days after the end of the reporting period. All reports unless otherwise specified do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (e) The first report shall cover the period commencing on the date of submission of affidavit of construction and ending on the last day of the reporting period. Reporting periods are based on calendar quarters.

SECTION D.1

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

- (1) One (1) 2-side, 2-coat coil coating line using roll coating method, with a nominal capacity of 55,000 pounds per hour of the flat rolled painted steel, using a 44 million Btu per hour capacity burner equipped thermal oxidizer to control VOC emissions and exhausting to stack 78.
- (2) Two (2) curing ovens, each with a nominal heat input capacity of 22 million Btu/hour capacity using a 44 million Btu per hour capacity burner equipped thermal oxidizer to control VOC emissions and exhausting to stack 78.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 Volatile Organic Compound [326 IAC 2-2]

Pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration) to maintain the minor status for this modification, the VOC emissions shall be limited as follows:

- (a) For the 2-side, 2-coat, coil coating line:
the input of VOC shall be limited to less than 3894 tons per twelve (12) consecutive month period, with compliance demonstrated at the end of each month. This VOC usage limitation in conjunction with the operation of thermal oxidizer at 99% overall control efficiency limits VOC emissions from the coil coating line to less than 38.94 tons per twelve (12) consecutive month period, with compliance demonstrated at the end of each month.
- (b) The combined heat input rate for the two curing ovens shall not exceed 16 million Btu per hour and that for the thermal oxidizer shall be not exceed 60 million Btu per hour. This limits the VOC emissions from these units to less than 0.02 tons per twelve (12) consecutive month period.
- (c) The items (a) and (b) combined, limits the VOC emissions from the 2-side, 2-coat coil coating line modification to less than 40 tons per 12 consecutive months period, with compliance demonstrated at the end of each month. This limit pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration) makes this modification minor under this rule.
- (d) Item (a) in this condition also limits the HAP emissions from the 2-side, 2-coat coil coating line modification to less than ten (10) tons of a single HAP or twenty-five (25) tons of a combination of HAPs per 12 consecutive month period. This limit makes this modification minor pursuant to 40 CFR Part 63, Subpart SSSS.
- (e) During the first twelve (12) months of operation, the input of VOC shall be limited such that the total usage divided by the accumulated months of operation shall not exceed total tons per year as shown in item (a) above divided by twelve (12) months, which equals 324.5 tons per month for the 2-side, 2-coat, coil coating line.

D.1.2 Volatile Organic Compounds (VOC) [326 IAC 8-2-4]

- (a) Pursuant to 326 IAC 8-2-4 (Coil Coating Operations), the volatile organic compound (VOC) discharge to the atmosphere shall be limited to 2.6 pounds VOC per gallon of coating less water delivered to the coating applicator from prime and topcoat or single coat operations.

- (b) Pursuant to 326 IAC 8-1-2 (b), the coil coating line VOC emissions shall be limited to no greater than the equivalent emissions, 4.02 pounds of VOC per gallon of coating solids, allowed in (a).

The equivalency emissions are determined by the following equation:

$$E = L / (1 - (L/D))$$

Where

- L= Applicable emission limit from 326 IAC 8 in pounds of VOC per gallon of coating;
D= Density of VOC in coating in pounds per gallon of VOC;
E= Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.

Actual solvent density shall be used to determine compliance of the coil coating operation using the compliance methods in 326 IAC 8-1-2 (a).

- (c) Pursuant to 326 IAC 8-1-2(c) the overall control efficiency of the thermal oxidizer shall be no less than the equivalent overall efficiency of 46.04% calculated by the following equation:

$$O = \frac{V - E}{V} \times 100$$

Where:

- V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in 326 IAC 8-1-4 in units of pounds of VOC per gallon of coating solids as applied.
E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.
O = Equivalent overall efficiency of the capture system and control device as a percentage.

D.1.3 General Provisions Relating to NSPS [326 IAC 12-1] [40 CFR 60, Subpart A]

The provisions of 40 CFR 60 Subpart A - General Provisions, which are incorporated as 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR 60 Subpart 60, Subpart TT.

D.1.4 Metal Coil Surface Coating NSPS [326 IAC 12-1-1] [40 CFR 60, Subpart TT]

This facility is subject to 40 CFR 60, Subpart TT, which is incorporated by reference in 326 IAC 12-1-1. Permittee shall not cause to be discharged into the atmosphere more than:

- (a) 1.17 pounds per gallon of coating solids applied for each calendar month for 2-side, 2-coat, coating line that continuously uses a thermal oxidizer operated at the most recently demonstrated overall efficiency.
- or-
- (b) 10 percent of the VOC's applied for each calendar month (90 percent emission reduction) for each affected facility that continuously uses an emission control device(s) operated at the most recently demonstrated overall efficiency.

D.1.5 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section C - Preventive Maintenance Plan, of this permit, is required for the coil coating operation control device.

Compliance Determination Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.6 Permanent Total Enclosure [326 IAC 2-2]

Pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration) to maintain the minor status for this modification, the Permittee shall use a permanent total enclosure for the 2-side, 2 coat, coil coating line:

- (a) The capture system for the 2-side, 2-coat, coil coating line shall meet the criteria for a Permanent Total Enclosure as described in 40 CFR 60, Method 204. The Permanent Total Enclosure will meet the testing requirements in condition D.1.8 (c).
- (b) Verify 100% capture through other methods as approved by the Commissioner.

D.1.7 Thermal Oxidizer

The thermal oxidizer shall operate with a control efficiency of not less than 99% at all times when 2-side, 2-coat, coil coating line is in operation. This efficiency is necessary to ensure compliance with conditions D.1.1, D.1.2 and D.1.4.

D.1.8 Testing Requirements [326 IAC 12, 40 CFR 60.463]

- (a) The Permittee shall conduct an initial performance test as required under 40 CFR 60.8(a) within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial start up of such facility and such other times as maybe required by the Administrator or IDEM, OAQ under section 114 of the Act and thereafter a performance test for each calendar month for each affected facility according to the procedures under condition D.1.8(c), (d), (e), and (f).
- (b) 40 CFR 60.8(d) and (f) do not apply to the performance test.
- (c) The Permittee shall determine the overall reduction efficiency (R) for the capture system and the control device to determine compliance with condition D.1.4(b).

For the initial performance test, the overall reduction efficiency (R) shall be determined as prescribed in paragraphs (c) (1), (2), and (3) of this section. In subsequent months, the Permittee may use the most recently determined overall reduction efficiency (R) for the performance test, providing control device and capture system operating conditions have not changed. The procedure in paragraphs (c) (1), (2), and (3) of this section, shall be repeated when directed by the Administrator, IDEM, OAQ or when the Permittee elects to operate the control device or capture system at conditions different from the initial performance test.

- (1) Determine the fraction (F) of total VOC's emitted by an affected facility that enters the control device using the following equation:

$$F = \frac{\sum_{i=1}^I C_{bi} Q_{bi}}{\sum_{i=1}^I C_{bi} Q_{bi} + \sum_{j=1}^P C_{fi} Q_{fi}}$$

Where:

- C_b = the VOC concentration in each gas stream entering the control device (parts per million by volume, as carbon).
- Q_b = the volumetric flow rate of each gas stream entering the control device (dry standard cubic meters per hour).
- C_{fi} = the VOC concentration in each gas stream emitted directly to the atmosphere (parts per million by volume, as carbon).
- Q_{fi} = the volumetric flow rate of each gas stream emitted directly
- I = the number of gas streams entering the control device, and
- p = the number of gas streams emitted directly to the atmosphere.

- (2) Determine the destruction efficiency of the control device (E) using values of the volumetric flow rate of each of the gas streams and the VOC content (as carbon) of each of the gas streams in and out of the device by the following equation:

$$E = \frac{\sum_{i=1}^n C_{bi} Q_{bi} - \sum_{i=1}^m C_a Q_a}{\sum_{i=1}^n C_{bi} Q_{bi}}$$

Where:

- C_a = the VOC concentration in each gas stream leaving the control device and entering the atmosphere (parts per million by volume, as carbon).
- Q_a = the volumetric flow rate of each gas stream leaving the control device and entering the atmosphere (dry standard cubic meters per hour).
- n = the number of gas streams entering the control device, and
- m = the number of gas streams leaving the control device and entering the atmosphere.

The Permittee shall construct the VOC emission reduction system so that all volumetric flow rates and total VOC emissions can be accurately determined by the applicable test methods and procedures specified in § 60.466.

- (3) Determine overall reduction efficiency (R) using the following equation:

$$R = EF$$

If the overall reduction efficiency (R) is equal to or greater than 0.90, the affected facility is in compliance and no further computations are necessary. If the overall reduction efficiency (R) is less than 0.90, the average total VOC emissions to the atmosphere per unit volume of coating solids applied (N) shall be computed as specified in sections (d) and (e) below.

- (d) Calculate the volume-weighted average of the total mass of VOC's per unit volume of coating solids applied (G) during each calendar month for each affected facility as follows:

- (i) Calculate the volume-weighted average of the total mass of VOC's consumed per unit volume of coating solids applied (G) during each calendar month for each affected facility, except as provided under paragraph (c)(1)(iv) of 40 CFR 60.463 as follows:

- (1) Calculate the mass of VOC's used ($M_o + M_d$) during each calendar month for each affected facility by the following equation:

$$M_o + M_d = \sum_{i=1}^n L_{ci} D_{ci} W_{oi} + \sum_{j=1}^m L_{dj} D_{dj}$$

Where:

- M_o = Mass of VOC's in coatings consumed, as received in kilogram (kg)
- M_d = Mass of VOC-solvent added to the coatings, in kg
- L_c = the volume of each coating consumed, as received in liters
- L_d = the volume of each VOC-solvent added to the coatings in liters (l)
- W_o = the proportion of VOC's in each coating, as received (fraction by weight)
- D_d = density of each VOC-solvent added to the coatings (kg/l)
- $\sum L_{dj} D_{dj}$ = will be 0 if no VOC solvent is added to the coatings, as received
- n = the number of different coatings used during calendar month, and
- m = the number of different VOC solvents added to coatings used during the calendar month.

- (2) Calculate the total volume of coating solids used (L_s) in each calendar month for each affected facility by the following equation:

$$L_s = \sum_{i=1}^n V_{si} L_{ci}$$

Where

- V_s = the proportion of solids in each coating, as received (fraction by volume).
- L_c = the volume of each coating consumed, as received in liters
- L_s = total volume of solids used in a calendar month
- n = the number of different coatings used during the calendar month.

- (3) Calculate the volume-weighted average mass of VOC's used per unit volume of coating solids applied (G) during the calendar month for each affected facility by the following equation:

$$G = \frac{M_o + M_d}{L_s}$$

- (e) Calculate the volume-weighted average of VOC emissions to the atmosphere (N) during each calendar month by the following equation:

$$N = G (1-R)$$

- (f) If the volume-weighted average mass of VOC's emitted to the atmosphere for each calendar month (N) is less than or equal to 0.14 kg/l of coating solids applied, the affected facility is in compliance. Each monthly calculation is a performance test.

D.1.9 Testing Requirements [326 IAC 3-6] [326 IAC 2-7-6(1), (6)]

- (a) Within 60 days of achieving maximum production rate, but no later than 180 days after issuance of this permit, the Permittee shall perform VOC emissions and thermal oxidizer control efficiency testing utilizing methods as approved by the Commissioner to comply with Condition D.1.1 and D.1.2.
- (b) The Permittee shall determine the hourly average temperature, minimum operating temperature and duct pressure or fan amperage for the thermal oxidizer from the most recent valid stack test that demonstrates compliance with the limits in conditions D.1.1 and D.1.2 as approved by IDEM.
- (c) IDEM may require compliance testing at any specific time when necessary to determine if the facility is in compliance. If testing is required by IDEM, compliance with the VOC limit specified in Condition D.1.1 and D.1.2 shall be determined by a performance test conducted in accordance with Section C - Performance Testing.

D.1.10 Volatile Organic Compounds (VOC)

Compliance with Condition D.1.1 shall be demonstrated at the end of each month. This shall be based on the total volatile organic compound emitted for the previous month, and adding it to previous 11 months total VOC emitted so as to arrive at VOC emission for 12 consecutive months period. The VOC emissions for a month can be arrived at using the following equation for VOC usage:

$$\text{VOC emitted} = [(\text{VOC input}) \times (100 - \% \text{control efficiency of thermal oxidizer})] + [\text{uncontrolled VOC}]$$

Where VOC input is based on the formulation data supplied by the coating manufacturer. IDEM, OAQ reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.11 Thermal Oxidizer [326 IAC 12, 40 CFR 60.464]

- (a) A continuous monitoring system shall be installed, calibrated, maintained, and operated on the thermal oxidizer to continuously record the combustion temperature of any effluent gases incinerated to achieve compliance with D.1.1, D.1.2 and D.1.4. This system shall have an accuracy of $\pm 2.5^{\circ}\text{C}$ or ± 0.75 percent of the temperature being measured expressed in degrees Celsius, whichever is greater.
- (b) The Permittee shall record all periods (during actual coating operations) in excess of 3 hours during which the average temperature in the thermal oxidizer used to control VOC emissions from an affected facility remains more than 28°C (50°F) below the temperature at which compliance with limit in D.1.1, D.1.2 and D.1.4 was demonstrated during the most recent measurement of thermal oxidizer efficiency required by D.1.7 and D.1.8. From the date of issuance of operation permit validation letter until the approved stack test results are available, the Permittee shall operate the thermal oxidizer at or above the hourly average temperature of 1500°F .
- (c) The records required by 40 CFR 60.7 shall identify each such occurrence and its duration.
- (d) On and after the date the approved stack test results are available, the Permittee shall observe the duct pressure or fan amperage at least once per day when the thermal oxidizer is in operation. On and after the date the approved stack test results are available the duct pressure or fan amperage shall be maintained within the normal range

as established in most recent compliant stack test.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.12 Record keeping and Reporting Requirements [326 IAC 12, 40 CFR 60.465]

- (a) The Permittee subject to the provisions of this subpart shall include the following data in the initial compliance report required by 40 CFR 60.8:
 - (1) The overall VOC destruction rate used to attain compliance with D.1.1, D.1.2 and D.1.4;
 - (2) The combustion temperature of the thermal incinerator, used to attain compliance with condition D.1.1, D.1.2 and D.1.4.
- (b) Following the initial performance test, the Permittee shall identify, record, and submit a written report to IDEM, OAQ every calendar quarter of each instance in which the volume-weighted average of the local mass of VOC's emitted to the atmosphere per volume of applied coating solids (N) is greater than the limit specified under D.1.4. If no such instances have occurred during a particular quarter, a report stating this shall be submitted to IDEM, OAQ, quarterly.
- (c) The Permittee shall include in the quarterly reports, instances when the thermal oxidizer temperature drops as defined under D.1.11. If no such periods occur, the owner or operator shall state this in the report.
- (d) The Permittee shall maintain at the source, for a period of at least 2 years, records of all data and calculations used to determine monthly VOC emissions from each affected facility and to determine the monthly emission limit, where applicable. The Permittee shall maintain, at the source, daily records of the thermal oxidizer combustion temperature.

D.1.13 Record Keeping Requirements

- (a) To document compliance with Condition D.1.1, the Permittee shall maintain records in accordance with (1) through (5) below. Records maintained for (1) through (5) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC usage limits and/or the VOC emission limits established in Condition D.1.1.
 - (1) The VOC content of each coating material and solvent used less water.
 - (2) The amount of coating material and solvent used on a monthly basis.
 - (A) Records shall include purchase orders, invoices, and material safety data sheets (MSDS) or any other information necessary to verify the type and amount used.
 - (3) The total VOC usage for each month.
 - (4) The continuous temperature records (on a three hour average basis) for the thermal oxidizer and the average temperature used to demonstrate compliance during the most recent compliant stack test.
 - (5) Daily records of the duct pressure or fan amperage.
- (b) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.14 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.1.1 shall be

submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE BRANCH
100 North Senate Avenue
P.O. Box 6015
Indianapolis, Indiana 46206-6015
Phone: 317-233-5674
Fax: 317-233-5967**

**PART 70 OPERATING PERMIT
EMERGENCY OCCURRENCE REPORT**

Source Name: Steel Dynamics, Inc.
Source Address: 4500 County Road 59, Butler, Indiana 46721
Mailing Address: 4500 County Road 59, Butler, Indiana 46721
Permit No.: 033-15836-00043

This form consists of 2 pages

Page 1 of 2

This is an emergency as defined in 326 IAC 2-7-1(12)
The Permittee must notify the Office of Air Quality (OAQ), within four (4) business hours (1-800-451-6027 or 317-233-5674, ask for Compliance Section); and
The Permittee must submit notice in writing or by facsimile within two (2) days (Facsimile Number: 317-233-5967), and follow the other requirements of 326 IAC 2-7-16.

If any of the following are not applicable, mark N/A

Facility/Equipment/Operation:

Control Equipment:

Permit Condition or Operation Limitation in Permit:

Description of the Emergency:

Describe the cause of the Emergency:

If any of the following are not applicable, mark N/A

Page 2 of 2

Date/Time Emergency started:

Date/Time Emergency was corrected:

Was the facility being properly operated at the time of the emergency? Y N
Describe:

Type of Pollutants Emitted: TSP, PM-10, SO2, VOC, NOX, CO, Pb, other:

Estimated amount of pollutant(s) emitted during emergency:

Describe the steps taken to mitigate the problem:

Describe the corrective actions/response steps taken:

Describe the measures taken to minimize emissions:

If applicable, describe the reasons why continued operation of the facilities are necessary to prevent imminent injury to persons, severe damage to equipment, substantial loss of capital investment, or loss of product or raw materials of substantial economic value:

Form Completed by:_____

Title / Position:_____

Date:_____

Phone:_____

A certification is not required for this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION**

**PART 70 SOURCE MODIFICATION
CERTIFICATION**

Source Name: Steel Dynamics, Inc.
Source Address: 4500 County Road 59, Butler, Indiana 46721
Mailing Address: 4500 County Road 59, Butler, Indiana 46721
Permit No.: 033-15955-00043

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this approval.

Please check what document is being certified:

Test Result (specify)

Report (specify)

Notification (specify)

Affidavit (specify)

Other (specify)

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION**

**PART 70 OPERATING PERMIT
QUARTERLY DEVIATION AND COMPLIANCE MONITORING REPORT**

Source Name: Steel Dynamics, Inc.
Source Address: 4500 County Road 59, Butler, Indiana 46721
Mailing Address: 4500 County Road 59, Butler, Indiana 46721
Permit No.: 033-15836-00043

Months: _____ to _____ Year: _____

Page 1 of 2

This report shall be submitted quarterly based on a calendar year. Any deviation from the requirements, the date(s) of each deviation, the probable cause of the deviation, and the response steps taken must be reported. Deviations that are required to be reported by an applicable requirement shall be reported according to the schedule stated in the applicable requirement and do not need to be included in this report. Additional pages may be attached if necessary. If no deviations occurred, please specify in the box marked "No deviations occurred this reporting period".	
9 NO DEVIATIONS OCCURRED THIS REPORTING PERIOD.	
9 THE FOLLOWING DEVIATIONS OCCURRED THIS REPORTING PERIOD	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	
Permit Requirement (specify permit condition #)	
Date of Deviation:	Duration of Deviation:
Number of Deviations:	
Probable Cause of Deviation:	
Response Steps Taken:	

Form Completed By:_____

Title/Position:_____

Date:_____

Phone:_____

Attach a signed certification to complete this report.

**INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE DATA SECTION**

Part 70 Significant Source Modification Permit - Quarterly Report

Source Name: Steel Dynamics, Inc.
Source Address: 4500 County Road 59, Butler, Indiana 46721
Mailing Address: 4500 County Road 59, Butler, Indiana 46721
Permit No.: 033-15836-00043
Facility: 2-side, 2-coat, coil coating line
Parameter: VOC usage for the coil coating line
Limits: 3894 tons per 12 consecutive month period rolled on monthly basis

Quarter: _____ YEAR: _____

Month	Column 1	Column 2	Column 1 + Column 2
	This Month	Previous 11 Months	12 Month Total
Month 1			
Month 2			
Month 3			

No deviation occurred in this quarter.

Deviation/s occurred in this quarter.

Deviation has been reported on:

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

Mail to: Permit Administration & Development Section
Office Of Air Quality
100 North Senate Avenue
P. O. Box 6015
Indianapolis, Indiana 46206-6015

Steel Dynamics, Inc.
4500 County Road 59,
Butler, Indiana 46721

Affidavit of Construction

I, _____, being duly sworn upon my oath, depose and say:
(Name of the Authorized Representative)

1. I live in _____ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.
2. I hold the position of _____ for _____.
(Title) (Company Name)
3. By virtue of my position with Steel Dynamics, Inc., I have personal knowledge of the representations contained in this affidavit and am authorized to make these representations on behalf of Steel Dynamics, Inc.
4. I hereby certify that Steel Dynamics, Inc., 4500 County Road 59, Butler, Indiana 46721, has modified the equipment in conformity with the requirements and intent of the construction permit application received by the Office of Air Quality on July 03, 2002 and as permitted pursuant to **Source Modification No. 033-15836-00043** issued on _____

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

Signature

Date

STATE OF INDIANA)
)SS

COUNTY OF _____)

Subscribed and sworn to me, a notary public in and for _____ County and State of
Indiana on this _____ day of _____, 20 _____.

My Commission expires:

Signature

Name (typed or printed)

Indiana Department of Environmental Management Office of Air Quality

Addendum to the Technical Support Document for a Part 70 Significant Source Modification

Source Background and Description

Source Name:	Steel Dynamics, Inc.
Source Location:	4500 County Road 59, Butler, IN 46721
County:	Dekalb
SIC Code:	3312
Operation Permit No.:	033-8068-00043
Operation Permit Issuance Date:	Not yet issued
Significant Source Modification No.:	033-15836-00043
Permit Reviewer:	Gurinder Saini

On August 26, 2002, the Office of Air Quality (OAQ) had a notice published in the Auburn Evening Star, Auburn, Indiana, stating that Steel Dynamics, Inc., had applied for an approval to modify the existing steel manufacturing plant by addition of a new 2-side, 2-coat coil coating line. The public notice also stated that the IDEM, OAQ proposed to issue the Significant Source Modification for this operation and provided information on how the public could review the proposed approval and other documentation. Finally, the notice informed interested parties that there was a period till September 25, 2002 to provide comments on the draft permit.

This document contains footnotes as part of the text by IDEM, OAQ and also as part of the text by the commentators. The footnotes by commentators are shown in *Italics* whereas those by IDEM, OAQ are shown in the normal text.

On October 17, 2002, Steel Dynamics, Inc. submitted additional information pertaining to the burners in the curing ovens and the thermal oxidizer used to control VOC emissions. The information pertains to the change in the heat input capacities of the burners using natural gas (NG) as fuel. The Primer curing oven will operate on smaller burner and the Finish curing oven will operate on heat recuperated from the thermal oxidizer. No additional heat input will be required for the Finish curing oven. The following table describes the changes proposed by the applicant:

Equipment	Burner size as shown in the original application of July 3, 2002 (MMBtu/hour)	New burner size as shown in the revised application of October 17, 2002 (MMBtu/hour)
Thermal Oxidizer	44	60
Primer curing oven	22	16
Finish curing oven	22	0
Total	88	76

The page 5 of 6 of the Appendix A of the TSD for this permit contains the NO_x potential to emit calculation from the curing ovens and the thermal oxidizer based on the original application as follows:

$$\begin{aligned}
 \text{Potential to emit of NO}_x &= \frac{88 \text{ MMBtu}}{\text{hour}} \times \frac{1 \text{ MMSCF of NG}}{1000 \text{ MMBtu}} \times \frac{8760 \text{ hours}}{\text{year}} \times \frac{100 \text{ lb of NO}_x}{\text{MMSCF of NG}} \times \frac{0.0005 \text{ ton}}{\text{lb}} \\
 &= 38.5 \text{ tons per year}
 \end{aligned}$$

The potential to emit of NO_x is documented in the tables at page 2 of 9 of TSD under uncontrolled

potential to emit, and page 4 of 9 of TSD under controlled potential to emit.

The applicant also stated in the revised application that the NG used at the plant contains 1030 MMBtu per MMSCF.

The new calculations based on the October 17, 2002 revision to the application for the NO_x potential to emit are as follows:

$$\begin{aligned} \text{Potential to emit of NO}_x &= \frac{76 \text{ MMBtu}}{\text{hour}} \times \frac{1 \text{ MMSCF of NG}}{1030 \text{ MMBtu}} \times \frac{8760 \text{ hours}}{\text{year}} \times \frac{100 \text{ lb of NO}_x}{\text{MMSCF of NG}} \times \frac{0.0005 \text{ ton}}{\text{lb}} \\ &= 32.32 \text{ tons per year} \end{aligned}$$

The calculations in the Appendix A of the TSD are revised and a new version is attached to this TSD addendum showing revisions (where language deleted is shown with strikeout and that added is shown in bold) due to above changes.

The potential to emit tables in the TSD are revised as follows:

Uncontrolled Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA.”

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year)
PM	0.7
PM-10	2.9 2.5
SO ₂	0.2
VOC	3896.15 3895.8
CO	32.4 27.1
NO _x	38.5 32.3

HAPs*	Potential to Emit (tons/year)
1,2,4-Trimethylbenzene	4.56
Ethylbenzene	0.48
Xylene	1.88
Naphthalene	0.92
Glycol Ethers	6.36
Formaldehyde	0.01
Isophorone	0.49
Total for all HAPs	14.68
*HAP emissions are calculated using thermal oxidizer as control	

Controlled Potential to Emit

The table below summarizes the total potential to emit, reflecting all limits, of the modification (based on 8,760 hours of operation per year at rated capacity including enforceable emission control and production limit, where applicable):

Process	PM	PM10	SO ₂	VOC	CO	NO _x
---------	----	------	-----------------	-----	----	-----------------

	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)	(ton/yr)
2-side, 2-coat, Coil Coating line	-	-	-	<38.94	-	-
2 Curing ovens and 1 thermal oxidizer	0.7	2.9 2.5	0.2	4.06 0.02	16.4 0.27	38.5 32.3
Emissions increase from the proposed modifications	0.7	2.9 2.5	0.2	<40	16.4 0.27	38.5 32.3
PSD Significant Level	25	15	40	40	100	40

Changes made by the IDEM, OAQ to further clarify the permit condition

The IDEM, OAQ clarified the intent of condition D.1.1 (a) as follows to highlight the control efficiency is 'overall' for the thermal oxidizer as follows (where language deleted is shown with strikeout and that added is shown in bold):

D.1.1 Volatile Organic Compound [326 IAC 2-2]

Pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration) to maintain the minor status for this modification, the VOC emissions shall be limited as follows:

- (a) For the 2-side, 2-coat, coil coating line:
the input of VOC shall be no greater than 3894 tons per twelve (12) consecutive month period, rolled on monthly basis. This VOC usage limitation in conjunction with the operation of thermal oxidizer at 99% **overall** control efficiency limits VOC emissions from the coil coating line to less than 38.94 tons per twelve (12) consecutive month period, rolled on a monthly basis.

Comments received from Steel Dynamics, Inc.

Written comments were received from Mr. Barry Smith on behalf of Steel Dynamics, Inc., on September 09, 2002. These comments and IDEM, OAQ responses, including changes to the permit (where language deleted is shown with strikeout and that added is shown in bold) are as follows:

Comment 1:

Correct the title on the table of content page.

Response 1:

The text at the end of the title line was left inadvertently in the draft permit. The same has been removed as follows:

TABLE OF CONTENTS — ~~Yet to be modified~~

Comment 2:

The Permittee has recommended following changes to the language in condition B.4 (the reasons for recommending the change are provided in []):

B.4 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, ~~prior to start of operation,~~ *[ed. conflicts with (a)]* the following requirements are met:

- (a) The attached affidavit of construction **or its equivalent** shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application. The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as

proposed.

- (b) If actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.
- (c) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
- (d) The Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.
- ~~(e) In the event that the Part 70 application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:
 - ~~(1) If the Part 70 draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Part 70 draft.~~
 - ~~(2) If the Part 70 permit has gone through final EPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go through a concurrent 45 day EPA review. Then the Significant Source Modification will be incorporated into the final Part 70 permit at the time of issuance.~~
 - ~~(3) If the Part 70 permit has gone through public notice, but has not gone through final EPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Part 70 permit, and the Title V permit will issued after EPA review.~~~~

[ed. Section B.4(e) is not a permit condition for which the Permittee is responsible and conflicts with IDEM's intention for a clean and concise permit void of extraneous information.]

Response 2:

The IDEM, OAQ does not believe that the first paragraph language conflicts with the requirements in item (a) of B.4. The first paragraph states that before starting the operation of the equipment covered in this permit, the requirements in the subsequent items should be met. Once these requirements are met with, this permit approval shall also act as the operation permit for the equipment covered in this permit. The item (a) in the condition B.4 requires the Permittee to submit an affidavit of construction and the Permittee can start operation of the equipment covered in the permit on the date the affidavit is post marked or hand delivered. There does not seem to be any conflict in the two items.

The request to delete item (e) is accepted, as the significant source modification will be issued before the public notice of the Part 70 operating permit.

The item 'or its equivalent' is incorporated in the permit condition as follows:

B.4 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

- (a) The attached affidavit of construction **or its equivalent** shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application. The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.
- (b) If actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.
- (c) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
- (d) The Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.
- ~~(e) In the event that the Part 70 application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:
 - ~~(1) If the Part 70 draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Part 70 draft.~~
 - ~~(2) If the Part 70 permit has gone through final EPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go through a concurrent 45 day EPA review. Then the Significant Source Modification will be incorporated into the final Part 70 permit at the time of issuance.~~
 - ~~(3) If the Part 70 permit has gone through public notice, but has not gone through final EPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Part 70 permit, and the Title V permit will issued after EPA review.~~~~

Comment 3:

Change condition B.5 as follows:

B.5 NSPS Reporting Requirement

Pursuant to the New Source Performance Standards (NSPS), Part 60.460, Subpart TT, the source owner/operator is hereby advised of the requirement to report the following at the appropriate times:

- (a) Commencement of construction date (no later than 30 days after such date);
- (b) Anticipated start-up date (not more than 60 days or less than 30 days prior to such date);
- (c) Actual start-up date (within 15 days after such date); and
- (d) Date of performance testing (at least 30 days prior to such date), when required by a condition elsewhere in this permit.

Reports are to be sent to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, IN 46206-6015

The application and enforcement of these standards have been delegated to the IDEM, OAQ. ~~The requirements of 40 CFR Part 60 are also federally enforceable.~~
[A given for any regulation written by EPA.]

Response 3:

As explained in response 2 above, IDEM, OAQ provides this approval to the Permittee and also to general public for information. Therefore, this language informs the public about the enforceability provisions of NSPS requirement. No change is made to any permit condition.

Comment 4:

Revise the condition C.7 in the permit as follows:

C.7 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

- (a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after issuance of the validation letter, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this approval, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ within forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, if the source submits to IDEM, OAQ, a reasonable written explanation no later than five (5) days prior to the end of the initial forty-five (45) day period. **The report and any extension request submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).**

[ed. This statement is needed to be consistent with the intent of the regulation.]

Response 4:

The Permittee is required to submit the test report with the certification from the "responsible official" in accordance with 326 IAC 2-7-4 (f). The extension request for the submission of test

report does not require certification. The condition C.7 is revised as follows:

C.7 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

- (a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after issuance of the validation letter, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this approval, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

- (b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).
- (c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ within forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, if the source submits to IDEM, OAQ, a reasonable written explanation no later than five (5) days prior to the end of the initial forty-five (45) day period. **The test report requires certification by the "responsible official". The extension request described in this condition does not require certification by the "responsible official". The responsible official is as defined by 326 IAC 2-7-1(34).**

Comment 5:

Change condition C.9 as follows:

C.9 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

~~If~~**As** required by Section D, all monitoring and record keeping requirements shall be implemented when operation begins. **Consistent with Section D, the** ~~The~~ Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

Response 5:

The IDEM, OAQ feels that the condition C.9 states IDEM, OAQ's intent clearly. The replacement of 'if' with 'as' is not necessary as stated earlier, the Section C contains the general conditions for all applicants. The change does not effect any applicable requirement. The same is true for second change. Therefore, no changes are made to any permit conditions.

Comment 6:

The condition C.10 to be changes as follows:

C.10 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Except as provided elsewhere in this approval ~~Any-any~~ monitoring or testing required by Section D of this permit shall be performed according to the provisions of **40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.326 IAC 3,** ~~40 CFR 60, Appendix A, 40 CFR 60 Appendix B, 40 CFR 63, or other approved methods as specified in this permit.~~

[ed. These changes are needed to be consistent with Section C.7 and to include all available testing conditions specified elsewhere in this permit.]

Response 6:

The condition C.10 is revised as follows to make it consistent with C.7:

C.10 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Except as provided elsewhere in this approval ~~Any-any~~ monitoring or testing required by Section D of this permit shall be performed according to the provisions of **326 IAC 3, 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.326 IAC 3,** ~~40 CFR 60, Appendix A, 40 CFR 60 Appendix B, 40 CFR 63, or other approved methods as specified in this permit.~~

Comment 7:

Revise condition D.1.1 as follows:

D.1.1 Volatile Organic Compound [326 IAC 2-2]

Pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration) to maintain the minor status for this modification, the VOC emissions shall be limited as follows:

- (a) For the 2-side, 2-coat, coil coating line:
the input of VOC shall be ~~no greater~~**less** than 3894 tons per twelve (12) consecutive month period, rolled on monthly basis. This VOC usage limitation in conjunction with the operation of thermal oxidizer at 99% control efficiency limits VOC emissions from the coil coating line to less than 38.94 tons per twelve (12) consecutive month period, rolled on a monthly basis.
- (b) The heat input rate for the two curing ovens shall not exceed 22 million Btu per hour each and that for the thermal oxidizer shall be not exceed 44 million Btu per hour. This limits the VOC emissions from these units to less than ~~4.06~~**1.04** tons per twelve (12) consecutive month period, rolled on a monthly basis. *[ed. 1.06 is based on 1000 Btu/ft3. Whereas, SDI applied for 1030 Btu/ft3, which relates to 1.04 tons/year.]*
- (c) The items (a) and (b) combined limits the **VOC** emissions from the 2-side, 2-coat coil coating line modification to less than 40 tons per 12 consecutive months period rolled on monthly basis. This limit pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration) makes this modification minor under this rule.
- (d) **Item (a) limits the HAP emissions from the 2-side, 2-coat coil coating line modification to less than ten (10) tons of a single HAP or twenty-five (25) tons of a combination of HAPs per 12 consecutive month period rolled on a monthly basis. This limit makes this modification minor pursuant to 40 CFR Part 63, Subpart SSSS.**
- (e) During the first twelve (12) months of operation, the input of VOC shall be limited such that the total usage divided by the accumulated months of operation shall not exceed total tons per year as shown in item (a) above divided by twelve (12) months, which equals

324.5 tons per month for the 2-side, 2-coat, coil coating line.

Response 7:

The condition D.1.1 is revised as follows to further clarify IDEM, OAQ's intent and respond to comments. The changes to condition D.1.1 on previous pages are also incorporated in this condition:

D.1.1 Volatile Organic Compound [326 IAC 2-2]

Pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration) to maintain the minor status for this modification, the VOC emissions shall be limited as follows:

- (a) For the 2-side, 2-coat, coil coating line:
the input of VOC shall be ~~no greater~~ **limited to less** than 3894 tons per twelve (12) consecutive month period, ~~rolled on monthly basis~~ **with compliance demonstrated at the end of each month**. This VOC usage limitation in conjunction with the operation of thermal oxidizer at 99% **overall** control efficiency limits VOC emissions from the coil coating line to less than 38.94 tons per twelve (12) consecutive month period, ~~rolled on monthly basis~~ **with compliance demonstrated at the end of each month**.
- (b) The **combined** heat input rate for the two curing ovens shall not exceed ~~22~~ **16** million Btu per hour ~~each~~ and that for the thermal oxidizer shall be not exceed ~~44~~ **60** million Btu per hour. This limits the VOC emissions from these units to less than ~~4.06~~ **0.02** tons per twelve (12) consecutive month period.
- (c) The items (a) and (b) combined, limits the **VOC** emissions from the 2-side, 2-coat coil coating line modification to less than 40 tons per 12 consecutive months period, ~~rolled on monthly basis~~ **with compliance demonstrated at the end of each month**. This limit pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration) makes this modification minor under this rule.
- (d) **Item (a) in this condition also limits the HAP emissions from the 2-side, 2-coat coil coating line modification to less than ten (10) tons of a single HAP or twenty-five (25) tons of a combination of HAPs per 12 consecutive month period. This limit makes this modification minor pursuant to 40 CFR Part 63, Subpart SSSS.**
- (e) During the first twelve (12) months of operation, the input of VOC shall be limited such that the total usage divided by the accumulated months of operation shall not exceed total tons per year as shown in item (a) above divided by twelve (12) months, which equals 324.5 tons per month for the 2-side, 2-coat, coil coating line.

Comment 8:

Change condition D.1.6 as follows:

D.1.6 Permanent Total Enclosure [326 IAC 2-2]

Pursuant to 326 IAC 2-2 (Prevention of Significant Deterioration) to maintain the minor status for this modification, the Permittee shall use a permanent total enclosure for the 2-side, 2 coat, coil coating line:

- (a) The capture system for the 2-side, 2-coat, coil coating line shall meet the criteria for a Permanent Total Enclosure **as defined in 40 CFR Part 51, Appendix M**. The Permanent Total Enclosure will meet the testing requirements in condition D.1.8(c).
- (b) Verify 100% capture through other methods as approved by the Commissioner.

Qn' in the equation in place of 'Cfi' and 'Qfi'. The corrected condition is shown below:

D.1.8 Testing Requirements [326 IAC 12, 40 CFR 60.463]

- (a) The Permittee shall conduct an initial performance test as required under 40 CFR 60.8(a) within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial start up of such facility and such other times as maybe required by the Administrator or IDEM, OAQ under section 114 of the Act and thereafter a performance test for each calendar month for each affected facility according to the procedures under condition D.1.8(c), (d), (e), and (f).
- (b) 40 CFR 60.8(d) and (f) do not apply to the performance test.
- (c) The Permittee shall determine the overall reduction efficiency (R) for the capture system and the control device to determine compliance with condition D.1.4(b).

For the initial performance test, the overall reduction efficiency (R) shall be determined as prescribed in paragraphs (c) (1), (2), and (3) of this section. In subsequent months, the Permittee may use the most recently determined overall reduction efficiency (R) for the performance test, providing control device and capture system operating conditions have not changed. The procedure in paragraphs (c) (1), (2), and (3) of this section, shall be repeated when directed by the Administrator, IDEM, OAQ or when the Permittee elects to operate the control device or capture system at conditions different from the initial performance test.

- (1) Determine the fraction (F) of total VOC's emitted by an affected facility that enters the control device using the following equation:

$$F = \frac{\sum_{i=1}^I C_{bi} Q_{bi}}{\sum_{i=1}^I C_{bi} Q_{bi} + \sum_{j=1}^P C_{Rfi} Q_{Rfi}}$$

Where:

- C_b = the VOC concentration in each gas stream entering the control device (parts per million by volume, as carbon).
 Q_b = the volumetric flow rate of each gas stream entering the control device (dry standard cubic meters per hour).
 C_{fi} = the VOC concentration in each gas stream emitted directly to the atmosphere (parts per million by volume, as carbon).
 Q_{fi} = the volumetric flow rate of each gas stream emitted directly to the atmosphere (dry standard cubic meters per hour).
 I = the number of gas streams entering the control device, and
 p = the number of gas streams emitted directly to the atmosphere.

Comment 10:

The item (3) in condition D.1.8 (d) (1) (i) should be changed as follows:

- (3) Calculate the volume-weighted average mass **of VOC in coatings consumed (G) in a calendar month per unit volume of coating solids applied** of VOC's used per unit volume of coating solids applied (G) during the calendar month for each affected facility by the following equation:

$$G = \frac{M_o + M_d}{L_s}$$

Response 10:

The language in this condition is quoted verbatim from text in 40 CFR Part 60, subpart TT under 60.463 (c) (1) (i) (C). Therefore, no changes are required to any permit conditions.

Comment 11:

Change condition D.1.9 (a) as follows to remove the redundant text:

D.1.9 Testing Requirements [326 IAC 3-6] [326 IAC 2-7-6(1), (6)]

- (a) Within 60 days of achieving maximum production rate, but no later than 180 days after issuance of this permit, the Permittee shall perform VOC emissions and thermal oxidizer control efficiency testing utilizing methods as approved by the Commissioner to comply with Condition D.1.1 and D.1.2. ~~In addition to these requirements, IDEM may require compliance testing when necessary to determine if the emissions unit is in compliance. [ed. This statement essentially duplicates D.1.9(c).]~~

Response 11:

The condition D.1.9 (c) does cover the aspect of additional testing in the future. Therefore condition D.1.9 (a) is changed as follows:

D.1.9 Testing Requirements [326 IAC 3-6] [326 IAC 2-7-6(1), (6)]

- (a) Within 60 days of achieving maximum production rate, but no later than 180 days after issuance of this permit, the Permittee shall perform VOC emissions and thermal oxidizer control efficiency testing utilizing methods as approved by the Commissioner to comply with Condition D.1.1 and D.1.2. ~~In addition to these requirements, IDEM may require compliance testing when necessary to determine if the emissions unit is in compliance.~~

Comment 12:

Change the number of items in condition D.1.13 (a) as follows:

D.1.13 Record Keeping Requirements

- (a) To document compliance with Condition D.1.1, the Permittee shall maintain records in accordance with (1) through (5) below. Records maintained for (1) through (~~6~~5) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC usage limits and/or the VOC emission limits established in Condition D.1.1.

Response 12:

The actual number of sub items under D.1.13 (a) is five (5). Therefore the condition D.1.13 (a) is changed as follows:

D.1.13 Record Keeping Requirements

- (a) To document compliance with Condition D.1.1, the Permittee shall maintain records in accordance with (1) through (5) below. Records maintained for (1) through (~~6~~5) shall be taken monthly and shall be complete and sufficient to establish compliance with the VOC usage limits and/or the VOC emission limits established in Condition D.1.1.

Comment and Response 13:

The Permittee has recommended some changes in the TSD for this permit. These changes pertain to the grammatical errors or omitted text. IDEM, OAQ acknowledges these changes in this document. The IDEM, OAQ does not make changes to the TSD as it forms the basis for draft permit as presented for public comment. Any changes in the TSD are acknowledged in the TSD addendum. No changes are made to any permit conditions.

Comments received from Stephen Loeschner

Written comments were received from Mr. Stephen Loeschner of Fort Wayne, Indiana, on September 18, 2002. These comments and IDEM, OAQ responses, including changes to the permit (where language deleted is shown with strikeout and that added is shown in bold) are as follows:

General overview by the Commentator:

This is comment on a draft 40 CFR 70 style permit modification (where there is no 40 CFR 70 permit) for Steel Dynamics, Inc. in DeKalb County, Indiana ("SDI") described in Indiana Department of Environmental Management ("DEM") draft permit document package 033- 15836-00043 ("15836") for a painting operation, wherein approximately 88 million (gross calorific value assumed throughout) British Thermal Units ("BTU") per hour of fuel is combusted to provide curing heat as well as to oxidize 40 CFR 51.100(s) volatile organic compounds ("VOC") and 42 USC 7412 hazardous air pollutants ("HAP"). All combustion effluent is to be emitted from a single stack.

Comment 1:

Enforcement issues

DEM's statement in the 15836 Technical Support Document ("TSD"), "There are no enforcement issues related to this modification." lacks candor. In fact, SDI and Iron Dynamics, Inc. ("IDI"), which co-habits the SDI site, have a long historic practice of: 1) constructing emission units without proper permits, 2) operation of emission units without proper permits, and 3) operation of emission units with emissions greater than permitted. The history of SDI receiving no enforcement penalty or no penalty of substance as a result of DEM investigations and prosecutions is a near-equal period of time.

In Fact 16. of U.S. Environmental Protection Agency ("EPA") Finding of Violation and Notice of Violation EPA- 5- 01- IN-13 (incorporated herein by reference), EPA noted a mixed oxides of nitrogen ("NOx") limit of 0.51 pounds per ton of product, and in Violation 29., EPA noted a 1.34 pound per ton of product measured rate.

Rather than the obfuscatory, "There are no enforcement issues related to this modification." text, DEM should have provided a complete list of all pending enforcement actions together with a complete list of all enforcement actions settled within the last year. Those two lists are requested to be response to comment items.

Response 1:

The TSD on the page 2 of 9 contains the statement under 'Enforcement Issue' stating that "There are no enforcement issues related to this modification". The IDEM, the TSD is to establish that the applicant has applied for the approval in accordance with the 326 IAC 2, the article pertaining to the permit rules requirements. This statement is in no way reflection of the historical compliance status of the source or any other future or pending enforcement actions.

The intent of this section is to establish that whether the applicant followed the proper application procedure for the modification approval, or was the application submitted after the fact, that the construction and/or operation of the equipment had already started. In the second case the modification could be considered construction and/or operation with proper permit and may constitute a violation of the applicable regulation.

The detailed information about the enforcement actions is available at the Office of Enforcement web site below:

<http://www.in.gov/idem/enforcement/oe/about/index.html>

No changes are made to any permit conditions.

Comment 2:

NOx federal enforceability

In the face of the above 160%+ NOx violation, comes now DEM suggesting that the 15836 modification has only a 38.5 ton per year ("tpy") NOx possibility with no required compliance test whatsoever. It is incredibly easy to allege compliance when there is never a test that may show non-compliance. This lack of required periodic testing is overtly contumacious of the "40 CFR 52.21(b)(17) *federally enforceable*" definition. In fact NOx seems absent from the entire 15836 D. conditions area.

Further, there is no annual BTU fuel limit and DEM has hung its hat on an EPA AP-42 emission factor of 100 pounds NOx per billion BTU times 8,760 hours and the 88 million BTU per hour rated equipment to yield less than the 40 CFR 52.21(b)(23)(i) 40 tpy significance. In fact, the operation of the burner as thermal oxidizer pollution control equipment ("TO, PCE") to destroy VOC and HAP is rather contrary to the selected AP-42 Table 1.4-1 "B"-rated factor. It is entirely reasonable to expect more than 100 pounds NOx per billion BTU from TO PCE and DEM was totally silent in re the mater in 15836 TSD.

NOx stack testing must be required not less frequently than annually on all of the combustion emission units. Annual fuel limits together with recorded measurements must be required on all combustion emission units.

Response 2:

The alleged violations described in the comment 1 above are not relevant to the modification in this approval. The commentator has compared a large emission unit (which is an EAF in this case) that has distinctive NO_x formation mechanism from the combustion of natural gas in a burner. This comparison is not relevant to any details of this permit and therefore is not considered in any further discussion.

The permit contains a restriction on the capacity (heat input) of the burners in the curing ovens and the thermal oxidizer (condition D.1.1 (b) of the Section D of the permit). Therefore, this restriction coupled with 8760 hours of operation, yields annual fuel usage. In the light of the revision to the application explained on the earlier pages, this burner capacities in condition D.1.1 is revised to reflect the recent values of heat input for the burners in later part of this document. This restriction is sufficient to ensure that the annual NO_x emissions from the coil coating line are below the 40 tons per year, the significance threshold under 326 IAC 2-2.

The IDEM, OAQ used the 100 lb per MMSCF of natural gas as the emission factor for calculating NO_x emissions from the combustion in the thermal oxidizer and curing ovens. (Emission factor documented in AP 42 – Compilation of Emission Factors, Chapter 1.4 – External Combustion Sources – Natural Gas combustion). The detailed process of NO_x formation during combustion is described in this chapter. No information has been provided or is available with the IDEM, OAQ, which suggests that, the NO_x generated during combustion in a boiler or furnace is in anyway different, then the one generated in the thermal oxidizer in terms of quantities. The commentator has not presented any theoretical, technical or empirical information indicating a basis for disregarding the use of this emission factor for the calculations. Unless these emission factors are proved highly unreliable (rated “D” or “E”), IDEM, OAQ as a standard procedure relies on AP –42 to estimate potential to emit for various pollutants.

Comment 3:

VOC federal enforceability

DEM alleges 15836 is less than the 40 CFR 52.21(b)(23)(i) 40 tpy VOC significance based on a 3,894 tpy VOC input limit and VOC TO PCE 99% minimum destruction. Continuously measuring VOC in stack gas and continuously measuring TO destruction efficiency are difficult. However, continuously measuring carbon monoxide (“CO,” a product of incomplete combustion that rises with a failure to destroy VOC) is a long proven technique.

Maximum-rate TO VOC percentage destruction efficiency stack testing must be required not less frequently than annually. A CO continuous emission monitoring (“CEM”) system, for concentration and pounds per year, must be required on the TO stack.

Response 3:

The Permittee is required in condition D.1.11 (a) of the permit to install, calibrate, maintain and operate a continuous monitoring system, to monitor combustion temperature of the gases, incinerated in the combustion chamber of the thermal oxidizer. The item (d) in the same condition require the Permittee to observe the duct pressure or fan amperage at least once per day when the thermal oxidizer is in operation to ensure negative pressure in enclosure. The record keeping requirements require the Permittee to maintain continuous records of hourly average temperature and the daily record of the fan amperage. The IDEM, OAQ, considers the above monitoring approach sufficient for this permit.

The 2-side, 2-coat coil coating line at SDI plant will be subject to the requirement of 40 CFR Part 64 – Compliance Assurance Monitoring¹, because the uncontrolled potential to emit for VOC is

¹ Compliance Assurance Monitoring Rule, US EPA website address <http://www.epa.gov/ttn/emc/cam.html>, November 13, 1997.

greater than 100 tons per year, and there is a control device to comply with the applicable limits. As described in the section 64.5, the Permittee is required to submit a Compliance Assurance Monitoring (CAM) plan at the time of the renewal of the Part 70 Operating Permit.

Even though the modification to install the 2-side, 2-coat coil coating line is not subject to the CAM plan at this time, it is useful to refer to guidance documents for the CAM rule, to arrive at monitoring approach for the thermal oxidizer for the coating line. The guidance document¹ contains CAM illustrations for the use of thermal oxidizer for VOC control. The three approaches identified in this document show following monitoring indicators:

1. Combustion chamber temperature and annual burner inspections.
2. Combustion chamber temperature, annual burner inspections and exhaust gas flowrate.
3. Combustion chamber temperature and outlet CO concentration.

The commentator is recommending the third choice from the above list. The US EPA guidance document has not mentioned any preferences and has identified these three as acceptable approaches. The permit contains the item 2 above for the monitoring approach for the thermal oxidizer emissions. Therefore, there is no further regulatory or technical basis for requiring continuous emissions monitoring system for CO emissions from the thermal oxidizer.

No changes are made to any permit conditions.

Comment 4:

Continuous emission monitoring

Federal enforceability generally demands CEM. P. H.6, II.C., para. 2 of the EPA October 1990 *New Source Review Workshop Manual* (incorporated herein by reference) is clear: "Where continuous quantitative measurements are infeasible...." Thus for the limit knocking NOx, where 38.5+ tpy is expected to flow in newly constructed stack 78, CEM is indicated.

On 29 December 2000 DEM issued construction and federally enforceable operation permit and foundation package 179- 12321- 00026 ("12321" <http://ftp2.ai.org/pub/idem/oam/12321f.pdf> incorporated herein by reference) to DPL/ Montpelier Generating in Wells County for a source consisting of 16 identical stacks through which less than 250 tpy total NOx flow is permitted. While it legally could flow 249 tpy through 1 stack and 0 through the remaining stacks, far more likely is a flow of less than 40 tpy through any of the 8 constructed stacks and less than 250 tpy total NOx flow through the 8 constructed stacks. Of significance is that both CO and NOx CEM is required by 12321 Condition D.1.9(b). Thus, it is very practical to impose identical requirements on the 15836 single stack 78. Further, for DEM to deny the requirement, DEM has the technical burden to prove infeasibility.

With no 15836 CEM, as proposed by DEM, federal enforceability of CO and NOx is a sham. CEM for both, with the resulting monthly summary data being a public record not more than 3 weeks following the end of a calendar quarter is a minimum for compliance; else there will be a failed stack test, years of unknown degree of non-compliance, and DEM's usual zero enforcement.

Response 4:

The commentator in the first paragraph in the above comment has cited the New Source Review Workshop Manual out of the context². The first line on the page H.6 describes the intent of this section. It states "The permit should state *how compliance with each limitation will be determined*, and include, but is not limited to, the test method(s) approved for demonstrating compliance."

¹ See pages B-23 to B-28, CAM Guidance Document Appendix B REVISED, US EPA website address <http://www.epa.gov/ttn/emc/cam.html>, August 17, 1998.

² See page H.6, New Source Review Workshop Manual, OAQPS, US EPA, Draft, October 1990.

[emphasis added]. On the same page the next paragraph contains the quote by the commentator. The intent of the US EPA is to highlight the fact that, in the cases where the permit contains an emission limit, the Permittee should be required to demonstrate compliance with the limit. The complete sentence quoted by the commentator is "Where continuous, quantitative measurements are infeasible, surrogate parameters must be expressed in the permit." The commentator's argument is irrelevant because of the following points:

1. The intent of the quote in the first paragraph on page H.6 of the manual is to state that wherever the permit contains an emission limitation, the permit should also describe how the monitoring should be performed to show compliance with the limit. In this case, the coil coating line does not have any limitation on the NOx emissions because the potential to emit for NOx is less than 40 tons per year, the significance threshold under 326 IAC 2-2 (PSD). Therefore, as there is no limit, there are no compliance requirements for the NOx emissions.
2. The intent of the quote in the second paragraph on page H.6 of the manual is to state that whenever, continuous measurement of emissions [to show compliance with the permit limit] is not possible, the Permittee should be required to use surrogate parameters (parametric monitoring) measurements for the purpose. It clearly shows that US EPA's intent is not to state that, any emission unit with PTE of pollutant greater than 0 (Zero) tons per year but less than the significance levels under PSD, should be required to install continuous monitoring systems, to demonstrate that the emissions are under the significance levels, on a continuous basis throughout the life of the equipment.

The commentator's use of the fragmented and out of context sentence from the NSR workshop manual is incorrect and unsubstantiated.

The permit 179-12321-00026, was issued to DPL Energy Montpelier Electric Generating Station, which is an electric generating station, consisting of eight (8) twin pack combustion turbines in the simple cycle mode for use during peak demand periods. The commentator has suggested that, if, the DPL Station, which is a minor source for NOx emissions, is required to install CEMs to monitor NOx emissions, to show compliance with the PSD minor limit of 250 tons per year, then why SDI coil coating line should not be required to install CEMs.

There is one significant difference between 8 turbines at the DPL station and the coil coating line at SDI. The TSD for the DPL permit, on page 5 of 14 contains a table for 'Potential to Emit', which shows that PTE for NOx from the 8 turbines is 3313.1 tons per year. On page 7 of 14 of the same TSD, under 'Limited Potential to Emit' table, it shows that the limited PTE for NOx emissions is 103.2 tons per year. Therefore even though the PTE of NOx is greater than 250 tons per year (the applicability threshold for PSD major review), the limited PTE is less than 250 tons per year. Whereas, in case of coil coating line the unlimited PTE and the limited PTE are less than 40 tons per year (the significance level for the PSD major review). Therefore, the DPL station has the physical capability to operate at levels greater than the Major PSD applicability, and require CEMs to show compliance with the applicability limit. On the other hand the coil coating line physically cannot emit NOx at a level greater than the PSD significance level.

In light of the above discussion no CEMs for the NOx emissions are required for the coil coating line.

The IDEM, OAQ would like to take this opportunity to make the commentator aware that, the US EPA and other permitting agencies have moved away from using the term 'federal enforceability', in light of the court order¹ vacating this part of the rule, and instead use the term 'enforceable as² to reflect the limitation.

¹ Chemical Manufacturers Association vs. EPA, No. 89-1514 (D.C. Circuit Court, Sept. 15, 1995) and Memo, "Release of interim Policy on Federal Enforceability of Limitations on Potential to Emit" from John S. Seitz of OAQPS, US EPA, Jan 22, 1996

² See page 2 paragraph 3, Memo "Applicability of Policy on Limiting Potential to Emit to General Motors Morrain Assembly Plant,

The potential to emit for NOx and CO emissions is 32.3 and 0.27 tons per year respectively, as shown and earlier pages in this document. This PTE for NOx and CO is less than 40 and 100 tons per year, the significance levels under the PSD for major review. Therefore, the permit does not contain any limitations for NOx and CO emissions, because the coil coating line does not have the physical capability to emit greater than these significance thresholds. The commentator has not presented any reasonable argument to suggest that the actual NOx and CO emissions from the coil coating line will exceed the significance levels for the modification under PSD. Therefore, the commentator's recommendation to require CEMs for CO and NOx is irrelevant and no changes are made to any permit conditions.

Comment 5:

Time v. permit action type

It is my understanding that if a "listed" source (steel mill plant) is, for example, permitted 42 USC 7479(1) major at 150 tpy for sulfur dioxide ("SO2") 1 June 1995, and gets permits for 35 tpy increases 2 May 1996, 3 April 1997, 4 April 1998, and 5 April 1999 that the source would generally be obligated to use Best Available Control Technology ("BACT"), a clever legal term wherein best does not mean best (see 42 USC 7479(3) and 40 CFR 52.21(b)(12)), for the initial permit as well as the first two modifications. I.e. as long as less than one year passes between permits, there is a presumption that the emissions be treated as a single unit. So, in the above example, when a year and a day passed from 3 April 1997 to 4 April 1998, the source may avoid BACT because the 35 tpy modification is less than the 40 CFR 52.21(b)(23)(i) 40 tpy significance. Now there is plenty in the computation of time that can cause controversy.

In reality SDI+IDI received Prevention of Significant Deterioration ("PSD") modification permit and foundation package 033- 12992- 00076 ("12992," <ftp://ftp2.ai.org/pub/ide/oam/12992f.pdf> incorporated herein by reference) 16 May 2002, for which SO2 BACT was required as a result of 42 USC 7470 *et seq.* PSD requirements, and there is every reason to believe that SDI expects 15836 to be issued prior to 16 May 2003. DEM will no doubt argue that the time-line is to apply as if 12992 was issued 25 June 1997, however the very basis that moved the time of BACT to the present, the EPA 17 November 1998 and 8 March 1999 guidance memos (incorporated herein by reference) mentioned in Appendix C to the 12992 TSD effectively make the date the actual 16 May 2002 date.

In permit draft and foundation package 029- 16235- 00033 (<ftp://ftp2.ai.org/pub/ide/oam/16235d.pdf> incorporated herein by reference), DEM noted in page 3 of the TSD that because the modification came within one year of the prior permit issuance, the modification must be considered as part of it.

Because 15843 comes within one year of 12992, 15843 must be considered as part of 12992.

Thus PSD SO2 BACT is required for 15836.

Precisely the same argument applies to particulate matter having an aerodynamic diameter of not more than 10 microns ("PM10"). Thus PSD PM10 BACT is required for 15836.

Precisely the same argument applies to NOx. Thus PSD NOx BACT is required for 15836.

Response 5:

This comment by the commentator focuses on two aspects of PSD program, 'circumvention of PSD' and 'Non-aggregation policy'. The issue springs from various guidance documents made available by US EPA in the past. These guidance documents pertain to the fact that the applicants

proposing to make multiple minor modifications within a short period of time, can in fact try to circumvent the PSD review, by splitting the large (possibly major for PSD) modification into smaller projects and permitting them separately as minor for PSD. The IDEM, OAQ's interpretation of the 'circumvention of PSD guidance' as follows:

1. In a memo¹, Air Enforcement Division, US EPA, stated that, "In the past year, several sources have obtained purportedly federally enforceable permits with operating restrictions limiting their potential to emit to minor or de minimis levels for the purpose of allowing them to commence construction prior to receipt of a major source permit. In such cases where EPA can demonstrate an intent to operate the source at major source levels, EPA considers the minor source construction permit void ab initio and will take appropriate enforcement action to prevent the source from constructing or operating without a major source permit." In the same memo, on page 14, US EPA stated the reason for identifying the sham permit as "If a major source or major modification permit application is filed simultaneously with or at approximately the same time as the minor source construction permit, this is strong evidence of an intent to circumvent the requirements of preconstruction review. Even a major source application filed after the minor source application, but either before operation has commenced or after less than a year of operation should be looked at closely."

The other factors US EPA identified in this memo are:

- a) Applications for funding
 - b) Reports on consumer demand and projected production levels.
 - c) Statements of authorized representatives of the source regarding plans for operation.
2. In another memo² for the circumvention guidance, the US EPA stated "...that EPA's current policy is not to aggregate less than significant increases at a major source when the emissions increase from a proposed modification is less than significant. Of course, attempts by applicants to avoid PSD review by splitting a modification into two or more minor modifications constitutes circumvention of the PSD requirements. Two or more related minor changes over a short period of time should be studied for possible circumvention.
 3. In another memo³ for the circumvention guidance regarding 3 M – Maplewood Minnesota, the US EPA reinforced this position as "Generally in 'sham' permitting, a source attempts to expedite construction by securing minor source status through permits containing operational restrictions from which the source intends to free itself shortly after completion of construction and commencement of operation. Such attempts are treated as unlawful circumvention of the preconstruction review requirements. Similarly, attempts to expedite construction by securing several minor source permits and avoiding major modification requirements should be treated as circumvention."

This memo identifies five specific criteria that could be evaluate to identify whether a source is circumventing major NSR, PSD review through the minor modification process. The actual language from this memo is quoted below:

- a) *Filing of more than one minor source or minor modification application associated with emissions increases at a single plant within a short time period.*
If a source files more than one minor source permit application simultaneously or

¹ Memo "Guidance on Limiting Potential to Emit in New Source Permitting", From Terrell E. Hunt, Associate Enforcement Counsel, Air Enforcement Division, Office of Enforcement and Compliance Monitoring, US EPA, June 13, 1989.

² Memo "Request for Clarification of Policy Regarding the "Net Emissions Increase", From John Calcagni, Director Air Quality Management Division, US EPA, September 18, 1989.

³ Memo "Applicability of New Source Review Circumvention Guidance to 3M - Maplewood, Minnesota", From John B. Rasnic, OAQPS, US EPA, Jun 17, 1993.

within a short time period of each other, this may constitute strong evidence of an intent to circumvent the requirements of preconstruction review. Authorities should scrutinize applications that relate to the same process or units that the source files either before initial operation of the unit or after less than a year of operation. The September 18, 1989 memorandum from John Calcagni to William Hathaway states that two or more related minor changes over a short time period should be studied for possible circumvention.

- b) *Application of funding.*
Applications for commercial loans or, for public utilities, bond issues, should be scrutinized to see if the source has treated the projects as one modification for financial purposes. If the project would not be funded or if it would not be economically viable if operated on an extended basis (at least a year) without the other projects, this should be considered evidence of circumvention.
- c) *Reports of consumer demand and. projected production levels.*
Stockholder reports, reports to the Securities and Exchange Commission, utility board reports, or business permit applications should be reviewed for projected operation or production levels. If reported levels are necessary to meet projected consumer demand but are higher than permitted levels, this is additional evidence of circumvention.
- d) *Statements of authorized representatives of the source regarding plans for operation.*
Statements by representatives of the source to EPA or to State or local permitting agencies about the source's plans for operation can be evidence to show intent to circumvent preconstruction review requirements.
- e) *EPA's own analysis of the economic realities of the projects considered together.*
EPA may determine that it is reasonable to expect that company management would coordinate the planning and execution of projects considering their intrinsic relationship with each other (physical proximity, stages of production process, etc.) and their impact on economic viability of the plant (scheduling down time in light of production targets, economies of scale, etc.).

In conclusion to the 3 M case, the US EPA stated that "... sources cannot use the minor modification process to circumvent major modification requirements. Where a source is permitted for several minor modifications that may in good faith be intended to be, separate but result in the source's aggregate increases to be major even considering decreases over a short time period (e.g., one year or 18 months), the modifications may require major new source review. Such modifications could require NSR if they are viewed as being consistent with the source's overall production goals or plans for a short planning period. In other words, 3M should not benefit from the absence of a plant-wide production plan."

- 4. In a letter¹ the US EPA dealt with this issue in the case of Honda plant in Ohio. Honda applied for two modifications to increase VOC emissions in one case equal to 36.7 tons per year and in second case equal to 35.3 tons per year within a period of 6 months. The two modifications individually were less than 40 tons per year (the significance level for the VOC emissions for major PSD review).

US EPA in this letter stated "...it is important to prevent the circumvention of the PSD

¹ Letter from Cheryl L. Newton, Chief, Permits and Grants Section, Region V, US EPA dated August 8, 1996 regarding the aggregation of two modifications at the Marysville, Ohio plant within six month period.

regulation by not subdividing planned facility modifications into separate permit applications and processing permits within short time frames. This is why a time frame is provided as guidance in the June 13, 1989, policy memorandum. For purposes of consistency in implementing both policies, it is appropriate to use a similar time period for grouping modification activities to assess circumvention efforts. In any case, the important matter here is whether or not the applicant could have reasonably known during the processing of the first PTI [Permit to install] application that the second project was under consideration.”

The IDEM, OAQ uses the above guidance to evaluate whether a minor PSD modification at a major PSD source could be part of the much larger project at the plant and is intentionally split by the applicant to circumvent the PSD review. The specific criteria identified in the item 3 above are most commonly utilized to perform this analysis.

In case of Steel Dynamics, Inc. (SDI) and Iron Dynamics, Inc. (IDI), as explained in the TSD for this permit, the two plants are considered a single source. The modification approval 033-12992-00076 was issued for the operation of coal and ore dryers for the IDI plant, which uses Rotary Hearth Furnace for the manufacture of Direct Reduced Iron (DRI). As explained in the TSD and the Addendum to the TSD for the modification approval 033-12992-00076, the dryers were constructed as part of the RHF project sometime between 1998 and 1999. The use of the dryers is directly related to the operation of the RHF where during a very cold start of the RHF on a cold and wet winter day, the raw materials coal and iron ore needs to be dried and heated to stabilize the operation.

The Permittee applied for the permit for the SDI 2-side, 2-coat coil coating line in 2002. The IDEM, OAQ evaluated the two modification requests at IDI (for the construction and operation of Dryers in 033-12992-00076 and the modification to the operation of RHF in yet to be issued 033-15955-00076) with the construction and operation of coil coating line at SDI (in the yet to be issued permit 033-15836-00043).

Criteria	Facts
Filing of more than one minor source or minor modification application associated with the increase at a single plant within a short time period (1 to 1.5 years)	<p>a) The modification request for the RHF dryers 033-12992 was submitted on December 05, 2000. The dryers were constructed between 1998 and 1999.</p> <p>b) The RHF modification request 033-15955 was submitted on May 02, 2002.</p> <p>c) The modification request for coil coating line 033-15836 was submitted on July 03, 2002.</p>
Whether or not the applicant could have reasonably known during the processing of the first application that the second project was under consideration	There is no reason to believe that at the time of installation of RHF dryers 033-12992, the SDI-IDI could have known about the coil coating line 033-15836 project approximately 3-4 years in future.
Are the operation at IDI linked to the operations SDI	There is a direct relation between the SDI and IDI operations. The IDI plant is for the manufacture of DRI, which can be used as a substitute for scrap, used in the electric arc furnaces at the SDI plant.
Can the modification for the coil coating line be linked to the operation of IDI	<p>The coil coating line 033-15836 can be linked to IDI as a downstream process for finishing the manufactured steel. The rolled steel coils manufactured at the SDI plant can be finished using one of the following processes:</p> <ul style="list-style-type: none"> - sell coils directly in the market - galvanize the coils using the galvanizing line - anneal the coils using the annealing furnaces - pickle the coils using the pickle line - or paint the coils using new coil coating line
Are there any changes to the steel	The operation of the steel manufacturing process is already at its full

coil manufacturing process (EAF, LMS, Casters) in terms of manufacturing capacity	production capacity. No change in the production rate of coil steel is expected because of the operation of the coil coating line at SDI plant.
Did the applicant intentionally split the project to avoid PSD applicability into two separate modification	<p>There is no evidence to suggest that SDI-IDI intentionally split the two projects. Further discussion on this item is contained in the evaluation section below.</p> <p>The purposes of two projects are inherently separate.</p> <p>The 033-12992 modification involved permitting the coal and ore dryers for the RHF. As explained in the TSD for this modification, the dryers are used only at the time of the startup of RHF, when the input material needs to be heated and dried before being processed. The reason for the 033-12992 application to modify the dryer was the operational problem with the exhaust. The exhaust from the coal and ore dryer routed to the main baghouse at the RHF was causing a back pressure in the RHF disrupting the operation. The IDI intended to split the exhaust and provide separate exhaust stacks to the two dryers so that they no longer need to be routed to the RHF baghouse stack.</p> <p>The purpose of 033-15836 is to apply paint to the steel coils using the 2 side 2 coat coil coating line.</p>
<p>Evaluation</p> <p>The request for 033-12992 modification was constructed and submitted more than 1 year before the request for 033-15836 modification. The purposes of two projects are inherently separate and in no way indicate a dependence of one on the other. The Permittee could operate equipment under either modification at full capacity irrespective of the existence of the other modification. The ability to paint steel coils does not relate to the operation of the IDI DRI plant. Therefore, the two projects are considered separate modifications and are in no way considered circumvention of PSD.</p>	

Comment 6:

SO2 BACT

In selecting SO2 BACT, DEM must consider all of the options listed in 42 USC 7479(3), one of which is "clean fuels." A sulfur- free fuel, like hydrogen, would likely be rejected due to cost. However a readily available and affordable clean fuel was codified as "40 CFR 72.2 *pipeline natural gas*" by 64 FR 28587 (26 May 1999) and subsequently recodified 16.6% more clean of the sulfur at 67 FR 40421 (12 June 2002) which DEM must consider, and, absent good technical cause shown, must require for operation of the 15836 emission units.

DEM error v. contumacy in re SO2 BACT

1. On 27 June 2002 DEM published draft New Source Review ("NSR") PSD permit and foundation package 125- 12760- 00039 ("12760" <ftp://ftp2.ai.org/pub/idem/oam/12760d.pdf> incorporated herein by reference) for Tenaska in Pike County having a SO2 BACT determination obligation. DEM failed to mention 40 CFR 72.2 pipeline natural gas, 67 FR 40421 (12 June 2002), or any other 42 USC 7479(3) clean fuel ("clean fuel") of its sulfur- limited quality, in the permitting process.
2. On 16 May 2002 DEM issued PSD modification permit and foundation package 12992 which had a SO2 BACT determination obligation. DEM failed to mention 40 CFR 72.2 pipeline natural gas, 64 FR 28587 (26 May 1999), or any other clean fuel of its sulfur- limited quality, in the permitting process.
3. On 5 October 2001 DEM issued NSR PSD permit and foundation package 093- 12432- 00021 ("12432" <ftp://ftp2.ai.org/pub/idem/oam/12432f.pdf> incorporated herein by reference) to Cogentrix in Lawrence County which had a SO2 BACT determination

obligation. DEM failed to mention 40 CFR 72.2 pipeline natural gas, 64 FR 28587 (26 May 1999), or any other clean fuel of its sulfur- limited quality, in the permitting process.

4. On 7 June 2001 DEM issued NSR PSD permit and foundation package 029- 12517- 00033 ("12517" <ftp://ftp2.ai.org/pub/idem/oam/12517f.pdf> incorporated herein by reference) to PSEG in Dearborn County which had a SO2 BACT determination obligation. DEM failed to mention 40 CFR 72.2 pipeline natural gas, 64 FR 28587 (26 May 1999), or any other clean fuel of its sulfur- limited quality, in the permitting process.
5. On 20 July 2000 DEM issued NSR PSD and 42 USC 7501 *et seq.* permit and foundation package 089- 11194- 0049 ("11194" <ftp://ftp2.ai.org/pub/idem/oam/11194f.pdf> incorporated herein by reference) to Whiting Clean Energy in a 40 CFR 81.315 Lake County SO2 "does not meet primary standards" area permitting $22.4 \times 8,768 / 2,000 = 98.2$ tpy when it had advertized 11.4 tpy in its legal ad. DEM failed to mention 40 CFR 72.2 pipeline natural gas, 64 FR 28587 (26 May 1999), or any other clean fuel of its sulfur- limited quality, in the permitting process.

Is there a pattern here?

DEM cannot understand the 40 CFR 72.2 pipeline natural gas definitions relative to SO2 BACT, and or DEM willfully acts contumaciously toward that clean fuel.

Regardless, for deficiencies shown, EPA should revoke all delegated and approved authority given to DEM to issue pollution permits.

While exploring this matter, I found 0.6 pounds SO2 per billion BTU mentioned in many places of 40 CFR 75, with an assumption of 100% sulfur content of fuel conversion to SO2. In the range of 1,017 - 1,024 BTU per scf, 40 CFR 72.2 pipeline natural gas, 67 FR 40421 (12 June 2002), translates into 1.40 pounds SO2 per billion BTU. Given the 7:3 difference, I inquired into the origin of the 40 CFR 75 value, but it seems to be prior to 60 FR 26510 *et seq.* (17 May 1995) and it seems to be prior to 1994. If the verbose narrative origin of the 40 CFR 75 value is within 58 FR 3590 - 3767 (11 January 1993), then the difficulty of reading 170+ pages of microfilm will likely leave it obscured for some time.

Response 6:

This significant source modification 033-15836-00043 has SO2 potential to emit far less than the significance level for the PSD major modification applicability. Therefore, this modification is considered minor for the applicability of PSD rules under 326 IAC 2-2. No changes are required to any permit conditions.

Comment 7:

PM10 BACT

EPA recognizes that "condensable emissions are also PM10, and that emissions that contribute to ambient PM10 concentrations are the sum of in-stack PM10 ... and condensable emissions." 55 FR 14246 (17 April 1990). See also 55 FR 41546 (12 October 1990) "condensable particulate matter (CPM) emissions form very fine particles in the PM10 size range and are considered PM10 emissions" and 56 FR 65433 (17 December 1991) (same).

EPA's Office of Air Quality Planning and Standards has stated unequivocally that "Since CPM is considered PM10 and, when emitted, can contribute to ambient PM10 levels, applicants for PSD permits must address CPM if the proposed emission unit is a potential CPM emitter." (31 March 1994 T.G. Pace to S. Fitzsimmons

<http://www.epa.gov/rqytgrni/programs/artd/air/nsr/nsrmemos/cpm.pdf> "Pace" incorporated herein by reference). SDI+IDI is clearly a "potential CPM emitter."

EPA has repeatedly required permitting authorities to include condensible PM limits *and testing methods* in permits. See *In re: AES Puerto Rico L.P.* <http://www.epa.gov/boarddec/disk11/aespur.pdf> (8 E.A.D. 324, 347, 27 May 1999). The agency also insists that condensible PM be considered in the applicant's BACT analysis, and in the permitting authority's review of that analysis. See *In re: Steel Dynamics, Inc.* <http://www.epa.gov/boarddec/disk11/steeldyn.pdf> PSD Appeal Nos. 99-4, 99-5 (EAB, June 22, 2000) at pp. 25-31.

BACT must be used to control PM10.

Ammonia ("NH3"), SO2, and NOx form several prominent ammonium and ammonium hydrogen sulfite, sulfate, and nitrate compounds which are PM10. DEM knew or should have known that SO2 is a PM10 precursor prior to 23 May 2000.

The PM10 BACT requirement implicitly commands DEM to consider all that which contributes to PM10.

At 67 FR 39606 (10 June 2002) "D.," EPA clearly said SO2 was meant to be a precursor to PM2.5 as stated 23 May 2002 via 65 FR 33269 *et seq.* PM2.5 is PM having an aerodynamic diameter of no more than 2.5 microns, and it is all PM10. Did DEM object to that becoming regulation? It appears from response to comment, 67 FR 39604 through 396607 (10 June 2002) that no commenter impeached the fact that PM10 which results from SO2 is a reality.

Thus it is clear error that DEM has not evaluated the harm of SDI+IDI emitting SO2, and it is clear abuse of discretion by DEM by not establishing federally enforceable permit limits for SO2.

The additional atmospheric PM10 on or near SDI+IDI, a pollutant subject to regulation under 42 USC Chapter 85, as a result of DEM permitting an excess of SO2 within is an unrefutable BACT "environmental impact" within the law and regulation.

"The term 'best available control technology' means an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this chapter emitted from or which results from any major emitting facility, which the permitting authority, on a case- by- case basis, taking into account energy, *environmental*, and economic *impacts* and other costs, determines is achievable for such facility...." (42 USC 7479(3) emphasis added)

The detailed U.S. Congressional law, which reasonably is superior to the 40 CFR 52.21(b)(12) administrative regulation, does not require that the "pollutant subject to regulation," the PM10, be emitted to be considered as an impact that must be analyzed and considered. The law, having the conjunction or, thus simply requires that *all* of the PM10 which results from a major emitting facility (SDI+IDI) become BACT analysis and BACT limit obligations.

The knowledge date of SO2 being a PM10 precursor vastly predates 23 May 2002. The or which results from Congressional text date vastly predates 23 May 2000. The date of BACT applicability is the later of the two dates (knowledge and law). Thus, all of the dates in 67 FR 39602 *et seq.* (10 June 2002) that follow 23 May 2000 are not relevant to the BACT obligation that was created by the knowledge date more than two years previously. In this matter, there is no need to identify the date other than to reasonably show, as I have, that it preceded the date that DEM published 15843.

The fact that the or which results from phrase is not within 40 CFR 52.21(b)(12) is not relevant, as the Congressional definition is sufficiently detailed that no intent by Congress to grant to the EPA Administrator a privilege of superceding the Congressional definition can be inferred.

Thus DEM's failure to account for SO2 related PM10 and to require minimal emission of SO2 by

clean fuel obligation is clear error.

In selecting PM10 BACT, DEM must consider all of the options listed in 42 USC 7479(3), one of which is "clean fuels." A sulfur-free fuel, like hydrogen, would likely be rejected due to cost. However a readily available and affordable clean fuel was codified as "40 CFR 72.2 *pipeline natural gas*" by 64 FR 28587 (26 May 1999) and subsequently recodified with 16.6% less permitted sulfur at 67 FR 40421 (12 June 2002) which DEM must consider, and, absent good technical cause shown, must require for operation of the 15836 emission units.

DEM error v. contumacy in re PM10 BACT

1. On 27 June 2002 DEM published draft NSR PSD permit and foundation package 12760 having a PM10 BACT determination obligation. DEM failed to mention 40 CFR 72.2 pipeline natural gas, 67 FR 40421 (12 June 2002), or any other 42 USC 7479(3) clean fuel ("clean fuel") of its sulfur- limited quality, in the permitting process.
2. On 16 May 2002 DEM issued PSD modification permit and foundation package 12992 which had a PM10 BACT determination obligation. DEM failed to mention 40 CFR 72.2 pipeline natural gas, 64 FR 28587 (26 May 1999), or any other clean fuel of its sulfur- limited quality, in the permitting process.
3. On 5 October 2001 DEM issued NSR PSD permit and foundation package 12432 which had a PM10 BACT determination obligation. DEM failed to mention 40 CFR 72.2 pipeline natural gas, 64 FR 28587 (26 May 1999), or any other clean fuel of its sulfur- limited quality, in the permitting process.
4. On 7 June 2001 DEM issued NSR PSD permit and foundation package 12517 which had a PM10 BACT determination obligation. DEM failed to mention 40 CFR 72.2 pipeline natural gas, 64 FR 28587 (26 May 1999), or any other clean fuel of its sulfur- limited quality, in the permitting process.
5. On 20 July 2000 DEM issued NSR PSD and 42 USC 7501 *et seq.* permit and foundation package 11194 in a 40 CFR 81.315 Lake County PM10 non-attainment area. DEM failed to mention 40 CFR 72.2 pipeline natural gas, 64 FR 28587 (26 May 1999), or any other clean fuel of its sulfur- limited quality, in the permitting process.

Is there a pattern here?

DEM cannot understand the 40 CFR 72.2 pipeline natural gas definitions relative to sulfur oxides as precursors to PM10 in establishing PM10 BACT, and or DEM willfully acts contumaciously toward that clean fuel.

Regardless, for deficiencies shown, EPA should revoke all delegated and approved authority given to DEM to issue pollution permits.

Response 7:

This significant source modification 033-15836-00043 has PM/PM10 potential to emit far less than the significance level for the PSD major modification applicability. Therefore, this modification is considered minor for the applicability of PSD rules under 326 IAC 2-2. No changes are required to any permit conditions.

Comment 8:

NOx BACT

The 100 pounds NOx per billion BTU proposed rate is abysmal. PCE, such as selective catalytic reduction, must be applied to achieve a rate less than 20 pounds NOx per billion BTU. And, if

PCE which emits NH₃ is selected, than the emission of the NH₃ must be rigidly controlled to less than 2 parts per million on a dry volume basis adjusted to 15% oxygen.

Response 8:

This significant source modification 033-15836-00043 has NO_x potential to emit less than the significance level for the PSD major modification applicability. Therefore, this modification is considered minor for the applicability of PSD rules under 326 IAC 2-2. No changes are required to any permit conditions.

Comments received from Plumber and Steamfitters Union, Local 166

Written comments were received from Mr. Alexander J. Sagady and Charles L. Berger, attorney on behalf of the Plumbers and Steamfitters Union, Local 166, on September 25, 2002. These comments and IDEM, OAQ responses, including changes to the permit (where language deleted is shown with strikeout and that added is shown in bold) are as follows:

General Comments

Introduction

The Plumbers and Steamfitters Union, Local 166, are submitting these comments for filing with the Indiana Department of Environmental Management, Office of Air Quality and the U.S. Environmental Protection Agency, Region 5.

The Plumbers and Steamfitters Union, Local 166 represent construction workers and their families who are employed in the construction trades in the geographical area of Butler, Indiana. These individuals perform plumbing, pipefitting and steamfitting work in conjunction with industrial construction work including the types of work necessary to construct and install the two sided-two coat coal coating line at Steel Dynamics, Inc.'s facility in Butler, Indiana.

The members of this Union are interested in maintaining a sustainable economy and sustainable economic development that can only be done when sound environmental policies and practices are followed. The proposed permit will provide for environmental degradation in the Butler, Indiana area that may very well jeopardize future jobs by making the environment less desirable for anyone to live and derive an income in this area and more importantly will create a less favorable environmental condition to allow for future economic development. Continued degradation of air quality can and has caused construction moratoriums and other restrictions on growth, which have reduced future employment opportunities for citizens in this state.

The individuals and their families that are represented by Plumbers and Steamfitters Union, Local 166 work in this community and will suffer the impact of detrimental projects towards the environment. All citizens, including the members of our client, breathe the same polluted air that is created and suffer the same health and safety impacts as all other citizens. The Plumbers and Steamfitters Union, Local 166 and its members have a significant interest in ensuring environmental laws protect its members as well as all other workers who are employed in the area.

The Plumbers and Steamfitters Union, Local 166 assert that the proposed Steel Dynamics project should receive close scrutiny. It is simply unacceptable and highly objectionable to both our union and our community for the Steel Dynamics project to illegally cause significant air quality degradation by failing to use state of the art emission control techniques and, at the same time, to fail to provide the counter-veiling economic benefits of decent wages and benefits during project construction.

The comments below describe how the proposed project will cause greater actual pollution impacts than are indicated in the company's emission analysis and how these facts show that the

permit should not be granted in its current form. The Applicant is unlawfully attempting to evade federally required disclosure of all expected emissions and full prevention of significant deterioration review required under IDEM and EPA rules. Because of Steel Dynamics evasion of disclosure and failure to comply with applicable requirements, we trust that IDEM will deny the permit application after full review of these comments and issue a cease and desist order against continuance of any site construction and operation of the facility.

Comment 1:

Request to IDEM to Hold a Public Hearing Concerning the Steel Dynamics Modification Permit

The public notice for the draft permit contains the following provision:

"If adverse comments concerning the air pollution impact of this draft source are received, together with a request for a public hearing, such a hearing may be held to give further consideration to this application."

Commentors raise serious issues of technical errors and non-compliance with federally-significant preconstruction review and air quality impact requirements. In addition, Commentors raise significant issues concerning emission limitations and compliance monitoring for the proposed modification.

As a result of these significant technical and legal issues, by this document Commentors request a public hearing to be held concerning the proposed draft source modification permit, including an extension of the comment period until the time of the public hearing and the holding of a public hearing during evening hours in the Butler, IN area so that concerned working people and local union members can attend.

Response 1:

Mr. Paul Dubenetzky of IDEM, OAQ discussed the matter of holding the public hearing with Mr. Charles Berger, representing the Plumbers and Steamfitters Union. Mr. Berger in this discussion and subsequent email on December 9, 2002, stated that the IDEM, OAQ does not need to hold a public hearing for this permit. Therefore no public hearing was conducted for this permit.

Comment 2:

The Proposed Steel Dynamics Modification Cannot be Permitted as a Minor Modification of a Major Source

The Emission Characterization of the Proposed Modification is in Error as a Result of Failure to Consider Nitrogen Oxides Generated from Combustion of Waste VOC Gases in the Thermal Oxidizer; the Potential to Emit for NOX from the Proposed Modification Exceeds 40 Tons Per Year

The Applicant has considered and admitted the maximum potential to emit for nitrogen oxides from 88 MMBTU/hr of natural gas combustion in the thermal oxidizer and the two paint curing ovens with the resulting 37.42 tons per year of NOX emissions.

However, the Applicant and IDEM deliberately failed to consider generation of NOX inherent in the combustion of waste VOC gases in the inlet to the thermal oxidizer. The calculation of these emissions is presented below. Commentors searched available literature and industrial sources for the heats of combustion for nearly all of the solvents used in the paints as listed in Applicants table of HAP and non-HAP VOC paint constituents. The results of that review are shown in the table below:

VOC Constituent	Mol Wt	CAS No	Emp Form	kJ/mol ¹	BTU/lb	Info Source
1,2,4-trimethylbenzene	120.19	95-63-6	C9-H12	5191	18597	NIST ²
o-xylene	106.17	95-47-6	C8-H10	4552	18462	NIST
Ethylene Glycol Butyl Ether	118.17	111-76-2	C6-H14-O2		12915	DOW ³
Butanol	74.12	71-36-3	C4-H10-O	2670	15511	NIST
Proylene glycol mono methyl ether	132.16	108-65-6	C6-H12-O3		10248	DOW
Butoxyethoxyethyl acetate	204.26	124-17-4	C10-H20-O4		12300	DOW ⁴
Naphthalene	128.17	91-20-3	C10-H8	5160	17335	NIST
Solvent Naphtha		64742-95-6			19389	EXXON ⁵
Solvent Naphtha, Heavy		64742-94-5			18493	EXXON
Aromatic Solvent		na			18493	EST ⁶
Ethylbenzene	106.17	100-41-4	C8-H10	4567	18523	NIST
2-ethylhexanol	130.23	104-76-7	C8-H18-O	5288	17484	NIST
Isobutanol	74.12	78-83-1	C4-H10-O	2669	15505	NIST
Pantanedioic Acid, dimethyl ester	160.17	1119-40-0	C7-H12-O4	3612	9710	NIST
Cyclohexanone	98.14	108-94-1	C6-H10-O	3518	15435	NIST
Isophorone	138.21	78-59-1	C9-H14-O	5265	16403	NIST
Butyrolactone	86.09	96-48-0	C4-H6-O2	2000	10003	NIST
2-Propoxy-ethanol	104.2	2807-30-9	C5-H12-O2	2928	12100	DOW
n-butyl acetate	116.16	123-86-4	C6-H12-O2	3467	12852	NIST

Using the BTU per pound information from the above table and the percent by weight, maximum usage and coating density information admitted by Applicant, the following table was assembled to derive annual BTU value of the waste VOC gases containing the 19 solvents noted in the prior table:

Primer 45Y54 Constituents	BTU/lb	% by Wt	Annual Max Usage (gal)	Coating Density (lb/gal)	Annual BTU from Constituent
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¹ Information from NIST [see next footnote] is generally provided in kilo-Joules per mole. This information was converted by Commentors to BTU/lb by using the published molecular weight and other appropriate conversion factors.

² NIST is the National Institute of Science and Technology, Chemistry Web-book, available online at <http://webbook.nist.gov/chemistry/>

³ DOW is the Dow Chemical Company website at www.dow.com Various pages at glycol ether web section.

⁴ The heat of combustion of butoxyethoxyethyl acetate is estimated by using the heat of combustion for Butyl Carbitol or butoxyethoxyethyl provided by Dow Chemical Company.

⁵ EXXON is the ExxonMobil Chemicals, Inc., September 23, 2002 personal conversation with the Product and Technical Information Support Department, (800)526-0749 on heat value of Aromatic 100 Fluid and Aromatic 150 Fluid, each consisting nominally of 100% of the light aromatic petroleum solvent and heavy aromatic petroleum solvent, respectively.

⁶ The heat of combustion of "aromatic solvents" is estimated by using the heat of combustion of heavy aromatic petroleum solvent, obtained from ExxonMobil Chemicals.

1,2,4-trimethylbenzene	18597	3.4	637523	11.44	4.61e+09
Xylene	18462	4.2	637523	11.44	5.66e+09
Ethylene Glycol Butyl Ether	12915	5.7	637523	11.44	5.37e+09
Naphthalene	17335	1.2	637523	11.44	1.52e+09
Solvent Naphtha	19389	5.8	637523	11.44	8.20e+09
Solvent Naphtha, Heavy	18493	10.9	637523	11.44	1.47e+10
Ethylbenzene	18523	1	637523	11.44	1.35e+09
Subtotal, Annual BTU to Thermal Oxidizer					4.14e+10
Finishing Poly White Constituents	BTU/lb	% by Wt	Annual Max Usage (gal)	Coating Density (lb/gal)	Annual BTU from Constituent
1,2,4-trimethylbenzene	18597	6.29	739922	11.51	9.96e+09
Ethylene Glycol Butyl Ether	12915	5.44	739922	11.51	5.98e+09
Butanol	15511	1.44	739922	11.51	1.90e+09
Proylene glycol mono methyl ether	10248	3.32	739922	11.51	2.90e+09
Aromatic Solvent	18493	13.08	739922	11.51	2.06e+10
Subtotal, Annual BTU to Thermal Oxidizer					4.13e+10
Finishing Poly Color Constituents	BTU/lb	% by Wt	Annual Max Usage (gal)	Coating Density (lb/gal)	Annual BTU from Constituent
Butanol	15511	4.7	369961	9.35	2.52e+09
Naphthalene	17335	2.2	369961	9.35	1.32e+09
Solvent Naphtha, Heavy	18493	19.7	369961	9.35	1.26e+10
Ethylbenzene	18523	0.3	369961	9.35	1.92e+08
2-ethylhexanol	17484	2	369961	9.35	1.21e+09
Isobutanol	15505	1.1	369961	9.35	5.90e+08
Pantanedioic Acid, dimethyl ester	9710	2.3	369961	9.35	7.73e+08
Subtotal, Annual BTU to Thermal Oxidizer					1.92e+10
SMP-White Finishing Constituents	BTU/lb	% by Wt	Annual Max Usage (gal)	Coating Density (lb/gal)	Annual BTU from Constituent
1,2,4-trimethylbenzene	18597	4.74	221977	10.42	2.04e+09
Xylene	18462	1.03	221977	10.42	4.40e+08
Ethylene Glycol Butyl Ether	12915	4.86	221977	10.42	1.45e+09
Butoxyethoxyethyl acetate	12300	8.65	221977	10.42	2.46e+09
Aromatic Solvent	18493	10.31	221977	10.42	4.41e+09
Ethylbenzene	18523	0.14	221977	10.42	6.00e+07
Subtotal, Annual BTU to Thermal Oxidizer					1.09e+10
SMP Color Finishing Constituents	BTU/lb	% by Wt	Annual Max Usage (gal)	Coating Density (lb/gal)	Annual BTU from Constituent
1,2,4-trimethylbenzene	18597	2.6	73992	9.48	3.39e+08
Xylene	18462	1.1	73992	9.48	1.42e+08
Butanol	15511	4.5	73992	9.48	4.90e+08
Butoxyethoxyethyl acetate	12300	1.9	73992	9.48	1.64e+08

Naphthalene	17335	2	73992	9.48	2.43e+08
Solvent Naphtha	19389	4.2	73992	9.48	5.71e+08
Solvent Naphtha, Heavy	18493	16.8	73992	9.48	2.18e+09
Ethylbenzene	18523	0.3	73992	9.48	3.90e+07
Isobutanol	15505	1.7	73992	9.48	1.85e+08
Cyclohexanone	15435	1.7	73992	9.48	1.84e+08
Subtotal, Annual BTU to Thermal Oxidizer					4.54e+09
Kynar-White Finishing Constituents	BTU/lb	% by Wt	Annual Max Usage (gal)	Coating Density (lb/gal)	Annual BTU from Constituent
Xylene	18462	6.44	44395	11.51	6.08e+08
Proylene glycol mono methyl ether	10248	3.23	44395	11.51	1.69e+08
Butoxyethoxyethyl acetate	12300	4.5	44395	11.51	2.83e+08
Ethylbenzene	18523	1.51	44395	11.51	1.43e+08
Isophorone	16403	19	44395	11.51	1.59e+09
Butyrolactone	10003	1.18	44395	11.51	6.03e+07
Subtotal, Annual BTU to Thermal Oxidizer					2.86e+09
Kynar-Color Finishing Constituents	BTU/lb	% by Wt	Annual Max Usage (gal)	Coating Density (lb/gal)	Annual BTU from Constituent
Xylene	18462	1.6	29597	9.35	8.17e+07
Ethylene Glycol Butyl Ether	12915	11.6	29597	9.35	4.15e+08
Butanol	15511	3	29597	9.35	1.29e+08
Butoxyethoxyethyl acetate	12300	2.5	29597	9.35	8.51e+07
Naphthalene	17335	2.2	29597	9.35	1.06e+08
Solvent Naphtha	19389	1.4	29597	9.35	7.51e+07
Solvent Naphtha, Heavy	18493	19.7	29597	9.35	1.01e+09
2-ethylhexanol	17484	1.5	29597	9.35	7.26e+07
2-Propoxy-ethanol	12100	1.8	29597	9.35	6.03e+07
n-butyl acetate	12852	1.1	29597	9.35	3.91e+07
Subtotal, Annual BTU to Thermal Oxidizer					2.07e+09

The following table summarizes the annual BTU value of waste VOC gases for each painting system for the 19 solvents analyzed:

Paint System	Annual BTU to Thermal Oxidizer
45Y54 Primer	4.14E+10
Poly-White Finish	4.13E+10
Poly-Color Finish	1.92E+10
SMP-White Finish	1.09E+10
SMP-Color Finish	4.54E+09
Kynar White Finish	2.86E+09
Kynar Color Finish	2.07E+09
Total Annual BTU from all Coatings in Waste VOC Gases for 19 Solvents	1.22E+11

This forgoing analysis of the total BTU value of uncontrolled emissions of 19 waste solvents accounts for a total of 3621 tons per year of uncontrolled VOC emissions from paint solvents as

compared to the Applicants total calculated uncontrolled VOC emission rate of 3894 tons per year solely from painting solvents.

The 1.22E+11 BTU/year calculated heating value of the 19 waste solvents compares to the 7.709 E+11 BTU/year natural gas heat input at 88 MMBTU/hr maximum potential rate. As a result, the calculated annual heating value from waste solvents cannot be disregarded in NOX potential to emit calculations.

Using the emission factor of 100 lbs NOX per million cubic feet of gas, Commentors convert this factor into a BTU equivalent. Commentors calculate this equivalent factor to be 9.709E-8 lbs of NOX per BTU heat input. At the rate of 1.22E+11 BTU per year from waste VOC constituents for the 19 solvents and at the aforementioned NOX BTU rate, the NOX emissions attributable to the combustion of such waste VOCs is 5.92 tons per year.

As a result, the potential to emit emission calculation for the proposed modification is 37.42 tons/year plus 5.92 tons/year or 43.34 tons per year. This amount exceeds the NOX major modification threshold contained in Indiana and U.S. EPA Prevention of Significant Deterioration regulations.

Response 2:

The commentator's argument is flawed and does not reflect the actual combustion process in the thermal oxidizer. The commentator incorrectly depicts the operation of thermal oxidizer in the comment. The IDEM, OAQ will like to respond to the commentator's argument as follows:

1. The EPA document on Air Pollution Technology¹ is a good reference to understand the operation of Recuperative type thermal oxidizer (Incinerator). The item 10 in this document is the 'Theory of Operation' for the thermal oxidizer.
2. It states that, "...thermal oxidation is the process of oxidizing combustible materials by raising the temperature of the material above its auto-ignition point in the presence of oxygen, and maintaining it at high temperature for sufficient time to complete combustion to carbon dioxide and water."
3. It further states that "The heart of the thermal incinerator is a nozzle-stabilized flame maintained by a combination of auxiliary fuel, waste gas compounds, and supplemental air added when necessary. Upon passing through the flame, the waste gas is heated from its preheated inlet temperature to its ignition temperature. The ignition temperature varies for different compounds and is usually determined empirically. It is the temperature at which the combustion reaction rate exceeds the rate of heat losses, thereby raising the temperature of the gases to some higher value. Thus, any organic/air mixture will ignite if its temperature is raised to a sufficiently high level (EPA, 1996a).

The required level of VOC control of the waste gas that must be achieved within the time that it spends in the thermal combustion chamber dictates the reactor temperature. The shorter the residence time, the higher the reactor temperature must be. The nominal residence time of the reacting waste gas in the combustion chamber is defined as the combustion chamber volume divided by the volumetric flow rate of the gas. Most thermal units are designed to provide no more than 1 second of residence time to the waste gas with typical temperatures of 650 to 1100°C (1200 to 2000°F)."

4. Based on above discussion the operation of the recuperative thermal oxidizer can be summed up as: VOC laden exhaust air is ducted to the thermal oxidizer system, typically passing through a primary heat exchanger and then into the oxidizer combustion

¹ This document is available from the US EPA website at <http://www.epa.gov/ttn/catc/products.html#aptecfacts>, titled "Incinerator - Recuperative Type" dated June 10, 1999.

chamber. The preheated exhaust air then passes across an auxiliary burner and is heated to a temperature controlled oxidation temperature suitable for the oxidation of the VOCs in the process. The air is held at that temperature for a sufficient length of time to ensure conversion of the hydrocarbons to products of combustion (water, CO₂). As part of the oxidation process, the VOCs in the exhaust air release heat which adds sufficient energy to the system to allow the temperature controlled fuel valve to throttle back and be used only to trim to the preset operating temperature.

5. Therefore, the commentator's observation that the thermal oxidizer burner will operate for 8760 hours per year, on the natural gas fuel in addition to the combustion of VOCs in the combustion chamber is completely inaccurate. The production of NO_x emissions during the combustion process is because of presence of Nitrogen in the combustion air used in the combustion chamber (called thermal NO_x). Therefore, during the operation of thermal oxidizer, the combustion chamber can use only fixed quantity of air for combustion. Hence irrespective of the fuel being used (i.e. natural gas or the VOC laden exhaust gases), the amount NO_x emitted stays the same because at any time a fixed volume of air is oxidized to produce NO_x in the combustion chamber. Therefore, no increase in the NO_x emissions from the combustion of VOC's in the exhaust gases is reasonably expected.
6. In addition due to change in the burner configuration as stated before, the new NO_x potential to emit for the project is 32.3 tons per year. Even if the non-existent 5.92 tons per year of NO_x emissions as claimed by the commentator (from the combustion of VOC laden gases in the thermal oxidizer) are added to 32.3 tons per year, at $(32.3 + 5.92 =)$ 38.22 tons per year, the total is still less than 40 tons per year, the significance level for NO_x emissions under 326 IAC 2-2 (PSD).

Therefore no changes are required to any permit conditions.

Comment 3:

The Proposed Permit Impermissibly Fails to Provide Federally Enforceable Physical Conditions to Limit the NO_x Potential to Emit to Less than the 40 Ton Per Year Major Modification Threshold Given Inherent NO_x Emissions from Combustion of Waste VOC Gases as well as Natural Gas Consumption

Form CE-02 in the Application for the thermal oxidizer indicates that both the supplementary fuel heat input rate and the total heat input capacity are both 44 MMBTU/hr. However, Applicant's indication of the total heat input capacity of the thermal oxidizer as 44 MMBTU/hr isn't credible in view of the significant BTU inputs from waste VOC combustion identified later in this section.

Applicant admits in their NO_x potential to emit calculation [labeled for natural gas combustion only] to 37.42 tons of NO_x per year based on a total heat input of 88 MMBTU/hr and 8760 hours per year.

Applicant must be deemed to have admitted by the potential to emit calculation in the application that combustion of worst case waste VOC gases on a potential to emit basis can occur during maximum calculated natural gas consumption in the NO_x potential to emit calculation.¹ As

¹ In their application, the Applicant is claiming that the maximum rate of 88 MMBTU/hr will only occur during startup and that heat recovery will allow the ovens to operate at less than their maximum combined 44 MMBTU/hr natural gas firing rate. Commentors deny that such a practice can constitute a basis for arriving at a lower potential to emit calculation based on less than 88 MMBTU/hour natural gas consumption. Counterbalancing the allegation of a reduced firing rate by the Applicant is the presence of a waste heat boiler shown in drawing 452-02-U in the application. The presence of the waste heat boiler means that the facility will have additional ability to use BTUs generated and recovered and that heat recovery at the thermal oxidizer outlet may not necessarily be directed to the curing ovens. No details are provided in the application concerning the BTU/hr capacity of the waste heat boiler.

demonstrated in the prior section, such a scenario would lead to NOX emissions of 43.34 tons per year.

Nothing about the maximum 3790 VOC usage limitation of condition D.1.1(a) limits the potential NOX emissions from the oxidizer exhaust below the 40 ton per year NOX threshold given the contribution of NOX inherent from waste gas VOC combustion.

The proposed permit modification contains no physical limitations on the potential to emit that would have the effect of limiting NOX emissions to less than 40 tons per year in view of the emission calculation of the prior section. There are no NOX hourly or annual emission limitations and not NOX continuous emissions or stack testing performance requirements.

Response 3:

As stated in previous pages, the applicant has revised the heat input for the thermal oxidizer to 60 MMBtu/hour. The total NOx potential to emit from this modification is less than 40 tons per year the significance level under 326 IAC 2-2 (PSD). Therefore, no limitations for NOx emissions are required to avoid applicability of PSD. The heat recovered from the recuperators will be used in the curing ovens. No changes are made to any permit conditions.

Comment 4:

The Applicant Has Commenced Construction of a Major Modification to a Major Stationary Source in Violation of the Federal Clean Air Act, Federal Air Pollution Regulations and IDEM Regulatory Requirements

The Applicant has apparently commenced construction in August, 2002 on this major modification for NOX emissions without the required federal and/or state Prevention of Significant Deterioration permit. Given that nothing in the draft permit simultaneously limits NOX emissions to less than 40 tons per year and places federally enforceable physical conditions that limit the potential to emit for NOX, final issuance of the draft permit cannot be held as a defense against violations of required pre-construction best available control technology and air quality impact reviews contained in the approved, federally-enforceable Indiana State Implementation Plan. Applicant is thus immediately vulnerable to a federal enforcement order from EPA under 42 U.S.C. Sec. 7477 and to citizen suits after a 60 day notice pursuant to 42 U.S.C. Sec. 7604(a)(3). Commentors are bringing this matter to the attention of the Region 5 air enforcement offices of the U.S. Environmental Protection Agency with the filing of these comments.

Response 4:

As previously stated the commentator's contention about potential to emit of NOx emissions being greater than 40 tons per year (the significance level for major modification under 326 IAC 2-2 (PSD) rule) is completely inaccurate. Therefore, this modification is considered minor under the provisions of 326 IAC 2-2 (PSD). The Permittee obtained an interim permit 033-15836I-00043 on July 24, 2002 to construct this new equipment. Pursuant to the 326 IAC 2-13-1(i) the interim significant source modification petition is in effect on July 21, 2002. This interim permit expires on the effective date of the final significant source modification permit 033-15836-00043. The applicant has complied with the applicable regulations to the interim permit under 326 IAC 2-13 and met all the requirements for the same. No change is made to any permit conditions.

Comment 5:

Regulatory Issues on Volatile Organic Compound Emissions Raised by Use of Paints Containing Significant Amounts of Oxygenated Solvents

Of the 19 paint solvents analyzed in Section 3.1, 12 of the solvents are oxygenates. Of the 3621 tons of VOC addressed by the Section 3.1 analysis, a total of 1108 tons (30.5%) are oxygenates whose molecules contain one or more oxygen atoms. This information was developed on the basis of the Applicant's spreadsheets showing percent by weight composition in the exposition of the package of worst-case coatings developed for purposes of determining the highest potential HAP and non-HAP VOC emissions.

The fundamental issue of concern is how total VOC emissions arising from oxygenates are disclosed, measured and regulated in analytical work and disclosure on paint formulations, in emission calculations and in stack testing and compliance determination methods. Commentors object to all methodologies proposed for use or contained in the draft permit which attempt to characterize paint formulations, to limit annual VOC use in paints, to calculate VOC emissions, to verify thermal oxidizer control efficiency and to verify stack emission compliance relying on an "as carbon" basis to allegedly ensure compliance with requirements to hold VOC emissions from the modified facility to be less than 40 tons per year for NSR compliance purposes. Commentors objection to "as carbon" emission characterization methodologies in these matters as gross underestimations and erroneous characterization of planned and actual emissions from the facility, even where NSPS Subpart TT allows and/or requires use of Method 25 "as carbon" methods when such a large proportion of paint solvents are oxygenates.

Even if "as carbon" emission testing methodologies are used to comply with NSPS Subpart TT, the draft permit should nevertheless be amended to require additional stack testing, paint formulation, compliance recordkeeping and thermal oxidizer performance efficiency testing that identifies each VOC species emitted of the solvents listed in the paint formations and with expected products of incomplete combustion (i.e. formaldehyde) for NSR purposes.

Emission characterizations for PSD applicability and non-applicability determinations must reflect volatile organic compound emission calculation analysis that takes the full mass of oxygenated VOCs into account. EPA directives on this matter are clear that use of "as carbon" measurements for purposes of new source review and Title V applicability and compliance are not permissible:

"For the other regulated pollutants that you listed, with the exception of VOC, calculation of the actual or potential emissions for purposes of NSR and title V applicability should follow the EPA principles for developing emission factors, inventories and test methods for the subject pollutant. For VOC emissions, however, it is recognized that the EPA's test methods do not measure the pollutant mass exactly or only measure a subset of the pollutant mass.² Nevertheless, for the purposes of both NSR and title V applicability, our policy has been that VOC emissions should be calculated as the total mass of VOCs. That is, a value for each volatile organic compound known to be emitted should be calculated separately and the sum of the individual values should be reported as total VOCs (e.g., 20 tpy of toluene and 26 tpy of methyl ethyl ketone should be calculated separately and then reported as 46 tpy of VOC). This follows our guidance in the document titled "Procedures for Preparing Emission Factor Documents," where we indicate that emission factors for VOCs should be reported "in terms of actual weight of the emitted substance." Those organic substances which are specifically excluded from EPA's definition of VOC at 40 CFR § 51.100(s), because they have "negligible photochemical reactivity," should not be included in the total VOC emission calculation for NSR and title V applicability. The document also provides an exception in the case of unknown species by stating that such emissions should be calculated using an "educated guess" or a molecular weight of 44 (for reporting as propane). Where necessary, this procedure should be used to calculate emissions of those volatile organic compounds that cannot otherwise be quantified."

"It is the EPA's intent that a consistent approach be taken, wherever possible, to quantify and report pollutant emissions for its various air programs. Thus, the methods described above for quantifying pollutant emissions would also apply to our procedures for such things as NSR netting,

emission trading and offsets, as well as for other SIP-related programs for criteria pollutants.”¹

Commentors assert that other test methods are more appropriate for stack emission determinations of a complex mixture which includes substantial amounts of oxygenates, include methods the same as or similar to Methods 18 and 320.

Commentors are Unable to Verify and Clarify the Analytical Basis of the Paint Formation and Its Effect on the VOC Emissions Analysis from File Materials Disclosed by IDEM on the Steel Dynamics

IDEM’s disclosure to Commentors contained only two Material Safety Data Sheets for two of the Akzo Nobel paints under consideration for use at the proposed facility. These MSDS sheets identified paint formation for solvents in “% by weight,” but the MSDS sheets do not identify the analytical methodology by which this was derived. Similarly, there is no information in the application to identify the methodology for determining the percent by weight figures used in the HAP/non-NAP VOC calculation spreadsheet submitted by the Applicant.

Commentors insist that the application must be considered incomplete and unapprovable until IDEM can verify that the figures offered for percent by weight are not adjusted or otherwise modified on a “VOC as carbon” basis and represent actual physical product proportions of the solvents in question. Any attempt to use product formulations for solvent information reported on a “VOC as carbon” basis will render gross underestimation errors in the VOC emission calculations and a resulting erroneous consideration of the proposed project as a minor VOC source (given how close existing VOC emission predictions are to the major modification threshold).

Compliance Verification and Stack Testing Procedures for Volatile Organic Compounds Contemplated by the Draft Permit are Vague and Some VOC Testing Procedures that are Mentioned Undermine Proper VOC Compliance Testing with “As Carbon” Testing Methodologies

The VOC performance stack test provisions of the draft permit are written so broadly that IDEM and the Applicant could use an “as carbon” method which opens the way for Steel Dynamics to evade full testing and disclosure of the total mass of VOC emissions from the facility in light of the large component of oxygenates used. Under Section C.7(a) and C.10, the Applicant and IDEM could easily agree to “as carbon” stack test methods for emissions and verification of thermal oxidizer efficiency which significantly understate the total mass of VOC emissions arising from the significant oxygenate use contemplated for this facility. In fact, the only specificity found in the permit on stack testing methods is found at Section D.1.8(c)(A) & (B) which “as carbon” methods are explicitly specified as part of a NSPS Subpart TT compliance procedure.

Vague stack testing, thermal oxidizer performance verification methods and paint constituent analytical methods which allow this source to under characterize its emissions so that it can operate a major modification VOC source, understate its emissions and then get away with being treated as a minor modification VOC source must be rejected in favor of methods which ascertain the true emission impact of the source in total mass of VOC constituents emitted.

Response 5:

The objection raised by the commentator on the methodology to demonstrate compliance with the emission limits for VOC is rejected. IDEM, OAQ based this on the following:

¹ June 5, 2001 letter from John Seitz, Director, EPA Office of Air Quality Planning and Standards, to D. Edward Settle, Manager, Air Quality, ThermoRetec Corporation, Golden, CO available on EPA’s Region 7 NSR website or from Commentors.

1. The Permittee submitted letters from the coating suppliers for this process stating that they use 'EPA Method 24' or its equivalent to calculate the amount of VOC in the coatings.
2. The New Source Performance Standard 40 CFR Part 60, Subpart TT¹, applies to this equipment and under item 60.466 (a)(1) states that, Method 24, or data provided by the formulator of the coating, shall be used for determining the VOC content of each coating as applied to the surface of the metal coil. In the event of a dispute, Method 24 shall be the reference method.
3. The 326 IAC 8-2-4 (Coil Coating Operations) applies to this equipment. The compliance methods for this rule are listed under 326 IAC 8-1-2². Under 326 IAC 8-1-2 it is stated that, for determining compliance based on this clause, an actual test, using approved methods such as a U.S. EPA Method 24 test and sampling procedures, of the VOC content of the coating in the tank or reservoir shall take precedence over viscosity. The rule 326 IAC 8-1-4 with respect to testing requirement specifies that, Method 24 of 40 CFR 60, Appendix A, shall be used to determine the volatile organic compounds content in coatings.
4. The National Emissions Standards for Hazardous Air Pollutants 40 CFR 63 Subpart SSSS³, which does not apply to this Source also relies on Method 24 for compliance. It is stated under test methods and procedures that, The nonaqueous volatile matter content, which would include all organic HAP plus all other organic compounds (excluding water), must be determined by EPA Method 24 of appendix A of 40 CFR part 60, or an EPA approved alternative method. You may rely on manufacturer's data to determine the organic HAP content or volatile matter content. However, if there is any inconsistency between the results of the test methods specified above (or an approved alternative) and manufacturer's or supplier's data, the test method results will prevail for compliance and enforcement purposes.
5. Therefore the use of U.S.EPA Method 24 to document the VOC content of the coatings is an acceptable methodology for the quantification of the emissions. This method unlike the "as carbon" method like Method 25 do take into account all VOC including 'oxygenates' and therefore alleviate the commentator's concerns. Especially the issue about non-quantification of the 'oxygenates' VOC content of the coatings is completely resolved with the use of this methodology as it documents the total VOC content.
6. The Permittee using Method 25, tests the VOC content of the inlet and the outlet of thermal oxidizer. This is an 'as carbon' method and is used to calculate the overall control efficiency of the thermal oxidizer from the earlier step. This control efficiency of the thermal oxidizer can be applied to the Method 24 VOC content to calculate the amount of VOC emitted depending upon the amount of VOC input to the coil coating line. The IDEM, OAQ reasonably believes that the compliance methodology, monitoring, record keeping and reporting requirements specified in the section D.1 of the Part 70 operating permit significant source modification 033-1536-00043 are sufficient to establish the minor modification status for the coil coating line under 326 IAC 2-2 (PSD).
7. The IDEM, OAQ believes that the no further gain can be achieved by speciating the VOC

¹ See New Source Performance Standard: Standard of Performance for Metal Coil Surface Coating, 40 CFR 60 Subpart TT, available at: <http://www.access.gpo.gov/ecfr>.

² See Article 326 IAC 8 (Volatile Organic Compounds Rules) available at: <http://www.in.gov/legislative/iac>.

³ See National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Coil, 40 CFR 63 Subpart SSSS, available at U.S. EPA website at: <http://www.epa.gov/ttn/atw/mcoil/mcoilpg.html>.

emissions into components and establishing the weight of individual components emitted as done by Method 18 or 320. Both EPA and IDEM has accepted in the past the reasonable assurance of compliance using Method 24 or formulation data from the manufacturer and Method 25 to establish control efficiency of the thermal oxidizer.

8. As explained in the addendum to the TSD to the permit 033-12992-00076¹ issued to Iron Dynamics, Inc., IDEM, OAQ has stated that as a policy it does not specify the test method for various pollutants in the permit itself. The permit requirements focus on the pollutants to be tested and the applicable limits. The IDEM, OAQ does not specify the test methods because in the course of time more elaborate and accurate test methods might be developed. The department does not want to be restricted to using the old less accurate methods to test when a newer version is available. Therefore, recent applicable test method is specified every time a Permittee sends in a protocol with request for observing the stack test to the Compliance Data Section of the IDEM, OAQ. Further information in this regard can be obtained from the Compliance Data Section of the IDEM, OAQ.
9. Even if the "as carbon" method such as Method 25 is used to establish the control efficiency of the thermal oxidizer, the Permittee is required to use the Method 24 or the formulation data by the manufacturer to establish the VOC content. This accurately depicts the actual VOC usage in the coil coating line and using the control efficiency established in the previous step calculates the VOC emissions after control for this modification. The Permittee is required to submit quarterly reports to show compliance with the applicable limit under 326 IAC 2-2.

No changes are made to any permit conditions.

Comment 6:

The Applicant has Evaded Characterizing VOC Emissions Associated with Paint Polymer/Resin Thermal Degradation and Use of Cleanup Solvents

All potential VOC emissions in the operation must be characterized and shown in the emission calculations. The Applicant has failed to show likely emissions from two specific sources.

The Applicant has failed to characterize VOC emissions resulting from thermal degradation of polymers and resins contained in the paints as they are heated in the curing ovens. No information is provided on the minimum and maximum curing oven temperatures, but some thermal degradation of such polymers and resins is to be expected in a elevated temperature curing operation.

The Applicant has failed to characterize VOC emissions resulting from the use of solvents for cleaning of paint spraying systems, including expected solvent cleaning of nozzles, nozzle supply injection lines between paint changes, solvents used to remove buildup of paint overspray on process equipment surfaces, solvents used to cleanout paint totes/tanks and solvents used in removing spills and in maintenance. Finally, there is no mention of any solvent cleanup to remove oils and grease in any pre-coating processing of steel coil materials, to the extent that such operations will occur. All such solvent uses associated with the modified facility must be accounted for in emission calculations and review as to whether the 40 ton per year VOC major modification threshold is exceeded.

Response 6:

¹ See TSD addendum for the "Part 70 Significant Source Modification and Major Modification Under Prevention of Significant Deterioration - 033-12992-00076" issued by IDEM, OAQ to the Iron Dynamics, Inc. on May 16, 2002

The VOC emitted during the curing process are taken into account by the Method 24 estimation of the VOC content of the coatings. In addition the condition D.1.13 requires the Permittee to maintain records of the VOC content and amount of usage of coating materials and solvents on monthly basis. These will be used to calculate monthly emissions from the coil coating line. Therefore, the emissions from the curing ovens and use of solvents are already accounted for in the VOC calculation to show compliance with the applicable limit. There is no steel degreasing operation associated with this process. No change is required to any permit condition.

Appendix A: Emissions Calculations
VOC
From Surface Coating Operations

Company Name: Steel Dynamics, Inc.
Address City IN Zip: 4500 County Road 59, Butler, IN 46721
CP: 033-15836
Plt ID: 033-00043
Reviewer: GS
Date: July 24, 2002

2-side, 2-coat coil coating line

Potential to Emit before Control

Material	Gallons per year	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year
Primer	637523	3.71	270.00	6480.03	1182.61
Poly-White	739922	3.55	299.85	7196.50	1313.36
Poly-Color	369961	3.63	153.31	3679.34	671.48
SMP-White	221977	3.89	98.57	2365.73	431.75
SMP-Color	73992	3.82	32.27	774.38	141.32
Kynar-White	44395	3.99	20.22	485.30	88.57
Kynar-Color	29597	4.39	14.83	355.97	64.97

Potential to Emit VOC emissions before control

3894.05 tons per year

Control efficiency of the thermal oxidizer = 99%

Potential to Emit after Control

Material	Gallons per year	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year
Primer	637523	3.71	2.70	64.80	11.83
Poly-White	739922	3.55	3.00	71.97	13.13
Poly-Color	369961	3.63	1.53	36.79	6.71
SMP-White	221977	3.89	0.99	23.66	4.32
SMP-Color	73992	3.82	0.32	7.74	1.41
Kynar-White	44395	3.99	0.20	4.85	0.89
Kynar-Color	29597	4.39	0.15	3.56	0.65

Potential to Emit VOC emissions after control

38.94 tons per year

Pounds of VOC per gallon of Solids = Pounds of VOC per Gallon coating (lb/gal)/[1-(Pounds of VOC per Gallon coating (lb/gal)/7.36 (density c

Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)

Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)

Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 t

Appendix A: Emissions Calculations
HAPs
From Surface Coating Operations

Company Name: Steel Dynamics, Inc.
Address City IN Zip: 4500 County Road 59, Butler, IN 46721
CP: 033-15836
Plt ID: 033-00043
Reviewer: GS
Date: July 24, 2002

	Coating ID	Constituent	CAS#	% by Wt	HAP?	Glycol Ether?	Max Usage (gal)	Coating Density (lb/gal)	Single HAP (t/yr)
Primer	45Y54	1,2,4-Trimethylbenzene	95-63-6	3.4	Yes		637,523	11.44	1.24
		ethylbenzene	100-41-4	1	Yes		637,523	11.44	0.36
		Xylene	1330-20-7	4.2	Yes		637,523	11.44	1.53
		Naphthalene	91-20-3	1.2	Yes		637,523	11.44	0.44
		Ethylene Glycol Butyl Ether	111-76-2	5.7	Yes	Glycol Ether	637,523	11.44	2.08
		Solvent Naphtha	64742-95-6	5.8	No				
		Solvent Naphtha, Heavy	64742-94-5	10.9	No				

Total 5.65

Finishing	Poly-White	1,2,4-trimethylbenzene	95-63-6	6.29	Yes		739,922	11.51	2.68
50.00%		Ethylene glycol momobutyl ether	111-76-2	5.44	Yes	Glycol Ether	739,922	11.51	2.32
		Butanol	71-36-3	1.44	No				
		Propylene glycol mono methyl ether	108-65-6	3.32	No				
		Aromatic Solvent	na	13.08	No				

Total 4.99

Finishing	Poly-Color	Naphthalene	91-20-3	2.2	Yes		369,961	9.35	0.38
25.00%		Ethyl benzene	100-41-4	0.3	Yes		369,961	9.35	0.05
		2-Ethylhexanol	104-76-7	2	No				
		Pentanedioic Acid, dimethyl ester	1119-40-0	2.3	No				
		Solvent Naphtha	64742-94-5	19.7	No				
		Isobutanol	78-83-1	1.1	No				
		1-Butanol	71-36-3	4.7	No				

Total 0.43

Finishing	Kynar-White	Ethyl Benzene	100-41-4	1.51	Yes		44,395	11.51	0.04
3.00%		Xylene	1330-20-7	6.44	Yes		44,395	11.51	0.16
		Isophorone	78-59-1	19	Yes		44,395	11.51	0.49
		Propylene glycol mono methyl ether	108-65-6	3.23	No				
		Butoxyethoxyethyl Acetate	124-17-4	4.5	Yes	Glycol Ether	44,395	11.51	0.11
		Butyrolactone	96-48-0	1.18	No				
Total								0.80	

Finishing	Kynar-Color	Naphthalene	91-20-3	2.2	Yes		29,597	9.35	0.03
2.00%		Xylene	1330-20-7	1.6	Yes		29,597	9.35	0.02
		Formaldehyde	50-00-0	0.4	Yes		29,597	9.35	0.01
		Ethylene Glycol Butyl Ether	111-76-2	11.6	Yes	Glycol Ether	29,597	9.35	0.16
		Ethanol, 2-Propoxy-	2807-30-9	1.8	Yes	Glycol Ether	29,597	9.35	0.02
		2-Ethylhexanol	104-76-7	1.5	No				
		Diethylene Glycol Butyl Ether Acetate	124-17-4	2.5	Yes	Glycol Ether	29,597	9.35	0.03
		Solvent Naphtha	64742-94-5	19.7	No				
		Solvent Naphtha, Light	64742-94-6	1.4	No				
		n-Butyl Acetate	123-86-4	1.1	No				
		1-Butanol	71-36-3	3	No				
Total								0.28	
Total All Lines =								14.68	

Individual HAPs		
1,2,4-Trimethylbenzene	95-63-6	4.56
ethylbenzene	100-41-4	0.48
Xylene	1330-20-7	1.88
Naphthalene	91-20-3	0.92
Glycol Ethers	na	6.36
Formaldehyde	50-00-0	0.01
Isophorone	78-59-1	0.49

Appendix A: Emissions Calculations**Natural Gas Combustion Only****MM BTU/HR <100****One 16 MMBtu/hr Curing oven and one 60 MMBtu/hr Thermal Oxidizer****Company Name:** Steel Dynamics, Inc.**Address City IN Zip:** 4500 County Road 59, Butler, IN 46721**CP:** 033-15836**Pit ID:** 033-00043**Reviewer:** GS**Date:** July 24, 2002Heat Input Capacity
MMBtu/hrPotential Throughput
MMCF/yr

88.0
76.0

770.9

646.4

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0	5.5	84.0
Potential Emission in tons/yr	0.7	2.5 2.9	0.2	32.3 38.5	1.78 2.12	27.1 32.4
Controlled Emission in tons/yr (Control Efficiency)	0.7	2.5 2.9	0.2	32.3 38.5	0.02 1.07 (99%)	0.27 16.35 (99%)

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

Curing ovens and thermal oxidizer are controlled for VOC and CO.**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 **1,030** MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

HAPs emissions from the combustion of Natural gas are minimal.

Appendix A: Emissions Calculations
Emissions summary for coil coating line

Company Name: Steel Dynamics, Inc.
Address City IN Zip: 4500 County Road 59, Butler, IN 46721
CP: 033-15836
Pit ID: 033-00043
Reviewer: GS
Date: July 24, 2002

Summary	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Uncontrolled						
Potential Emission in tons/yr	0.7	2.5 2.9	0.2	32.3 38.5	3895.8 3896.2	27.1 32.4

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

Summary	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Controlled						
Potential Emission in tons/yr	0.7	2.5 2.9	0.2	32.3 38.5	38.96 40.0	0.3 16.4

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Part 70 Significant Source Modification

Source Background and Description

Source Name:	Steel Dynamics, Inc.
Source Location:	4500 County Road 59, Butler, IN 46721
County:	Dekalb
SIC Code:	3312
Operation Permit No.:	033-8068-00043
Operation Permit Issuance Date:	Not yet issued
Significant Source Modification No.:	033-15836-00043
Permit Reviewer:	Gurinder Saini

The Office of Air Quality (OAQ) has reviewed a modification application from Steel Dynamics, Inc. relating to the construction and operation of a coil coating line as follows:

- (1) One (1) 2-side, 2-coat coil coating line using roll coating method, with a nominal capacity of 55,000 pounds per hour of the flat rolled painted steel using a 44 million Btu per hour capacity burner equipped thermal oxidizer to control VOC emissions and exhausting to stack 78.
- (2) Two (2) curing ovens, each with a nominal heat input capacity of 22 million Btu/hour capacity using a 44 million Btu per hour capacity burner equipped thermal oxidizer to control VOC emissions and exhausting to stack 78.

Based on the documentation in the latest application, the responsible official for this source is changed from Barry Smith, Environmental Engineer to Mark Millett, Vice President/Plant Manager. This change has been implemented by this modification.

History

On July 03, 2002, Steel Dynamics, Inc. submitted an application to IDEM, OAQ requesting permission to add a 2-side, 2-coat coil coating line to their existing steel production source.

Source Definition

This steel and iron manufacturing plant consists of:

- (a) Steel Dynamics, Inc., located at, 4500 County Road 59, Butler, IN 46721; and
- (b) Iron Dynamics, Inc., located at 4500 County Road 59, Butler, IN 46721.

IDEM has determined that Steel Dynamics, Inc. and Iron Dynamics, Inc. are under common control. These two plants are considered one source for Part 70 applicability

Separate Part 70 permits will be issued to Steel Dynamics, Inc. and Iron Dynamics, Inc. solely for administrative purposes.

Stack Summary

Stack ID	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
78	90	6.3	60,000	400

Enforcement Issue

There are no enforcement issues related to this modification.

Recommendation

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on July 03, 2002.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (pages 1 through ??).

Uncontrolled Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U.S. EPA.”

This table reflects the PTE before controls. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year)
PM	0.7
PM-10	2.9
SO ₂	0.2
VOC	3896.15
CO	32.4
NO _x	38.5

HAPs*	Potential to Emit (tons/year)
1,2,4-Trimethylbenzene	4.56
Ethylbenzene	0.48
Xylene	1.88
Naphthalene	0.92
Glycol Ethers	6.36
Formaldehyde	0.01
Isophorone	0.49
Total for all HAPs	14.68

*HAP emissions are calculated using thermal oxidizer as control

Justification for Modification

The Part 70 Source is being modified through a Part 70 Significant Source Modification. This modification is being performed pursuant to 326 IAC 2-7-10.5 (f) (4) because the potential to emit of NO_x, CO and VOC is greater than 25 tons per year.

County Attainment Status

The source is located in Dekalb County.

Pollutant	Status
PM-10	Attainment
SO ₂	Attainment
NO ₂	Attainment
Ozone	Attainment
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Dekalb County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Dekalb County has been classified as attainment or unclassifiable for PM-10, SO₂, CO, NO₂ and Lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

Existing Source PSD, Part 70 or FESOP Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	>100
PM-10	>100
SO ₂	>100
VOC	>100
CO	>100
NO _x	>100

- (a) This existing source is a major stationary source because attainment regulated pollutants are emitted at a rate of 100 tons per year or more, and it is one of the 28 listed source categories.

Controlled Potential to Emit

The table below summarizes the total potential to emit, reflecting all limits, of the modification (based on 8,760 hours of operation per year at rated capacity including enforceable emission control and production limit, where applicable):

Process	PM (ton/yr)	PM10 (ton/yr)	SO ₂ (ton/yr)	VOC (ton/yr)	CO (ton/yr)	NO _x (ton/yr)
2-side, 2-coat, Coil Coating line	-	-	-	<38.94	-	-
2 Curing ovens and 1 thermal oxidizer	0.7	2.9	0.2	1.06	16.4	38.5
Emissions increase from the proposed modifications	0.7	2.9	0.2	<40	16.4	38.5
PSD Significant Level	25	15	40	40	100	40

The detailed emission calculations for the above table are shown in pages 1 through 6 of the Appendix-A attached to this TSD.

- (a) This modification is minor for Prevention of Significant Deterioration Review, because the limited and controlled potential to emit for the VOC is less than 40 tons per year.
- (b) The VOC emissions from the proposed modification are limited as follows:

The Permittee has accepted that the VOC usage in the 2-side, 2-coat coil coating line shall be limited to less than 3894 tons per year.

- i. The Thermal Oxidizer (TO), (add-on control equipment) shall have 100% capture efficiency (total enclosure). Therefore, all VOC emitted shall be routed to the add-on control.
- ii. The TO shall maintain a destruction efficiency of at least 99%. Therefore, the VOC emissions from the TO exhaust shall be less than 38.94 tons per year.
- iii. The VOC emissions from the curing ovens are also controlled using the TO with at least 99% efficiency. Therefore the VOC emissions controlled from the curing ovens and uncontrolled from the TO itself shall be less than 1.06 tons per year.

The VOC emissions are calculated as follows:

$$\begin{aligned}
 \text{VOC emitted from TO} &< (100 - \text{Control Efficiency}) \times \text{VOC controlled by TO} \\
 &< (100 - 99)\% \times 3790 \\
 &< 37.9 \text{ tons per year}
 \end{aligned}$$

Therefore, the total limited and controlled potential to emit for VOC from the 2-side, 2-coat, coil coating line, 2 curing ovens and 1 thermal oxidizer shall be:

$$\begin{aligned}
 \text{VOC emissions (tons per year)} &< \mathbf{38.94 + 1.06} \\
 &< \mathbf{40 \text{ tons per year.}}
 \end{aligned}$$

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source has submitted their Part 70 (T 033-8068-00043) application on January 3, 1997. The equipment being reviewed under this permit shall be incorporated in the submitted Part 70 application.

Federal Rule Applicability

- (a) The 2-side, 2-coat, coil coating Line, is subject to the New Source Performance Standard, 326 IAC 12, (40 CFR 60.460, Subpart TT (Standards of Performance for Metal Coil Surface Coating) since the hot rolled steel is coated as it comes off the coil and before the product is formed. This rule requires that Permittee shall not cause to be discharged into the atmosphere more than:
 - (1) 1.17 pounds per gallon of coating solids applied for each calendar month for 2-side, 2-coat, coating line that continuously uses a thermal oxidizer operated at the most recently demonstrated overall efficiency.
 - or-
 - (2) 10 percent of the VOC's applied for each calendar month (90 percent emission reduction) for each affected facility that continuously uses an emission control device(s) operated at the most recently demonstrated overall efficiency.
- (b) There are no other New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this proposed modification.
- (c) The 2-side, 2-coat coil coating operation is not subject to the requirements of National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14 and 40 CFR Part 63) Subpart SSSS because this proposed modification is not located at a major source as defined under 40 CFR 63.2.
- (d) There are no other National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14 and 40 CFR Part 63) applicable to this proposed modification.

State Rule Applicability - Individual Facilities

326 IAC 1-6-3 (Preventive Maintenance):

- (a) The Permittee shall prepare and maintain Preventive Maintenance Plans (PMP) within ninety (90) days after commencement of operation, including the following information:
 - (1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission units;
 - (2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions;
 - (3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.
- (b) The Permittee shall implement the Preventive Maintenance Plans as necessary to ensure that lack of proper maintenance does not cause or contribute to a violation of any limitation on emissions or potential to emit.
- (c) PMP's shall be submitted to IDEM and OAQ upon request and shall be subject to review and approval by IDEM and OAQ.

326 IAC 2-2 (Prevention of Significant Deterioration)

The Permittee has agreed to limit the combined VOC emissions from the 2-side, 2-coat, coil coating line, 2 curing ovens and 1 thermal oxidizer to less than 40 tons per year. Therefore, this modification will not be subject to the requirements of 326 IAC 2-2.

326 IAC 2-4.1-1 (New Source Toxics Rule)

The New Source Toxics Control rule requires any new or reconstructed major source of hazardous air pollutants (HAPs) for which there are no applicable NESHAP to implement maximum achievable control technology (MACT), determined on a case-by-case basis, when the potential to emit is greater than 10 tons per year of any single HAP. Information on emissions of the 187 hazardous air pollutants are listed in the OAQ Construction Permit Application, Form Y (set forth in the Clean Air Act Amendments of 1990).

The New Source Toxic Rule is not applicable because any single HAP emission is not greater than or equal to 10 tons per year and any combination HAP emissions are not greater than or equal to 25 tons per year.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

326 IAC 6-3 (Particulate Emissions Limitations for Manufacturing Processes)

The 2-side, 2-coat coil coating line is not subject to the requirements of this rule because it uses roll coating method to apply coating materials to the coils. Therefore, pursuant to 326 IAC 6-3-1 (b)(6) this operation is exempt from this rule.

326 IAC 8-2-4 (Coil Coating Operations)

This 2 side, 2 coat coil coating line is subject to the requirements of this rule because it will coat the flat metal sheets that comes in a coil. Pursuant to 326 IAC 8-2-4, the volatile organic compound (VOC) discharge to the atmosphere shall be limited to 2.6 pounds VOC per gallon of coating less water delivered to the coating applicator from prime and topcoat or single coat operations.

The Permittee proposes to use a thermal oxidizer to limit the VOC to less than 2.6 pounds per gallon less water; therefore, meeting the requirements of 326 IAC 8-2-4.

326 IAC 8-1-2 (Compliance Methods)

Pursuant to 326 IAC 8-1-6 (b) the equivalent emission limit, expressed as pounds of VOC per gallon coating solids, is determined as follows:

$$E = \frac{L}{1 - \frac{L}{D}}$$

Where: L = Applicable emission limit from this article in pounds of VOC per gallon of coating.
D = Density of VOC in coating in pounds per gallon of VOC.
E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.

A solvent density of seven and thirty-six hundredths (7.36) pounds of VOC per gallon of coating shall be used to determine equivalent pounds of VOC per gallon of solids for the applicable emission limit contained in this article. Actual solvent density shall be used to determine compliance of surface coating operations using the compliance methods contained in subsection

(a) or section 5 of this rule.

$$\text{Therefore } E = \frac{2.6}{1-(2.6/7.36)} = 4.02 \text{ pounds of VOC per gallon coating solids as applied.}$$

Pursuant to 326 IAC 8-1-2(c) the overall control efficiency of the thermal oxidizer shall be no less than the equivalent overall efficiency calculated by the following equation:

$$O = \frac{V - E}{V} \times 100$$

Where:

- V = The actual VOC content of the coating or, if multiple coatings are used, the daily weighted average VOC content of all coatings, as applied to the subject coating line as determined by the applicable test methods and procedures specified in 326 IAC 8-1-4 in units of pounds of VOC per gallon of coating solids as applied.
- E = Equivalent emission limit in pounds of VOC per gallon of coating solids as applied.
- O = Equivalent overall efficiency of the capture system and control device as a percentage.

For this case, select the worst case VOC content coating is calculated as follows:

Pursuant to 326 IAC 8-1-2(a)(7), using a volume weighted average of coatings on a daily basis. This volume weighted average shall be determined by the following equation:

$$A = \frac{C \times U}{U}$$

Where: A is the volume weighted average in pounds VOC per gallon less water as applied;
C is the VOC content of the coating in pounds VOC per gallon less water as applied; and
U is the usage rate of the coating in gallons per hour.

Transfer efficiency is assumed to be 100% since the Permittee proposes to use roll coating applicators on the coil coating line

Pre coat usage = 72.78 gallons per hour

Finish coat usage = 168.93 gallons per hour

Pre coat VOC content = 3.71 lb of VOC/gallon of coating

Pre coat % solids by volume = 49.81 %

$$\text{Pre coat lb of VOC/gal of solids applied} = \frac{3.71 \times 100}{49.81}$$

$$= 7.45 \text{ lb of VOC/gal of solids applied}$$

Finish coat VOC content (weighted average) = 3.67 lb of VOC/gallon of coating

Finish coat % solids by volume (weighted average) = 51.5 %

$$\text{Finish coat lb of VOC/gal of solids applied} = \frac{3.67 \times 100}{51.5}$$

$$= 7.13 \text{ lb of VOC/gal of solids applied}$$

In this use lb of VOC per gallon solids in place lb of VOC per gallon of coating in the following equation.

$$A = \frac{(7.45 \times 72.78) + (7.13 \times 168.93)}{(72.78 + 168.93)} = 7.23 \text{ lb of VOC/gallon of solids as applied}$$

$$\text{Therefore, } O = \frac{7.45 - 4.02}{7.45} \times 100 = 46.04 \%$$

7.45

Therefore, the operation of thermal oxidizer shall comply with the limit in the rule 326 IAC 8-1-2

There are no other article 8 rules applicable to this modification.

There are no other new rules applicable to this modification.

Testing Requirements

Within 60 days of achieving maximum production rate, but no later than 6 months after issuance of the permit, for the 2-side, 2-coat, coil coating line, in order to demonstrate compliance the Permittee shall perform VOC testing on coil coating line.

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure the source can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions; however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs, IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The following are the applicable compliance monitoring requirements:

- (a) A continuous monitoring system shall be installed, calibrated, maintained, and operated on the thermal oxidizer for continuously record the combustion temperature of any effluent gases incinerated to achieve compliance with 40 CFR 60 Subpart TT. This system shall have an accuracy of $\pm 2.5^{\circ}\text{C}$ or ± 0.75 percent of the temperature being measured expressed in degrees Celsius, which is greater.
- (b) The Permittee shall record all periods (during actual coating operations) in excess of 3 hours during which the average temperature in the thermal oxidizer used to control VOC emissions from an affected facility remains more than 28°C (50°F) below the temperature at which compliance with limit in 40 CFR 60 Subpart TT, was demonstrated during the most recent measurement of thermal oxidizer efficiency. From the date of issuance of this permit until the approved stack test results are available, the Permittee shall operate the thermal oxidizer at or above the hourly average temperature of 1500°F .
- (c) The records required by 40 CFR 60.7 shall identify each such occurrence and its duration.
- (d) On and after the date the approved stack test results are available, the Permittee shall observe the duct pressure/fan amperage at least once per day when the thermal oxidizer is in operation. On and after the date the approved stack test results are available the

duct pressure or fan amperage shall be maintained within the normal range as established in most recent compliant stack test.

Conclusion

The construction and operation of this proposed modification shall be subject to the conditions of the attached Part 70 Significant Source Modification No. 033-15836-00043.

Appendix A: Emissions Calculations
VOC
From Surface Coating Operations

Company Name: Steel Dynamics, Inc.
Address City IN Zip: 4500 County Road 59, Butler, IN 46721
CP: 033-15836
Plt ID: 033-00043
Reviewer: GS
Date: July 24, 2002

2-side, 2-coat coil coating line

Potential to Emit before Control

Material	Gallons per year	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year
Primer	637523	3.71	270.00	6480.03	1182.61
Poly-White	739922	3.55	299.85	7196.50	1313.36
Poly-Color	369961	3.63	153.31	3679.34	671.48
SMP-White	221977	3.89	98.57	2365.73	431.75
SMP-Color	73992	3.82	32.27	774.38	141.32
Kynar-White	44395	3.99	20.22	485.30	88.57
Kynar-Color	29597	4.39	14.83	355.97	64.97

Potential to Emit VOC emissions before control

3894.05 tons per year

Control efficiency of the thermal oxidizer = 99%

Potential to Emit after Control

Material	Gallons per year	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year
Primer	637523	3.71	2.70	64.80	11.83
Poly-White	739922	3.55	3.00	71.97	13.13
Poly-Color	369961	3.63	1.53	36.79	6.71
SMP-White	221977	3.89	0.99	23.66	4.32
SMP-Color	73992	3.82	0.32	7.74	1.41
Kynar-White	44395	3.99	0.20	4.85	0.89
Kynar-Color	29597	4.39	0.15	3.56	0.65

Potential to Emit VOC emissions after control

38.94 tons per year

Pounds of VOC per gallon of Solids = Pounds of VOC per Gallon coating (lb/gal)/[1-(Pounds of VOC per Gallon coating (lb/gal)/7.36 (density c

Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)

Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)

Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 t

Appendix A: Emissions Calculations HAPs From Surface Coating Operations

Company Name: Steel Dynamics, Inc.
Address City IN Zip: 4500 County Road 59, Butler, IN 46721
CP: 033-15836
Plt ID: 033-00043
Reviewer: GS
Date: July 24, 2002

[illegible][illegible][illegible]

[illegible][illegible]

Finishing	Kynar-White	Ethyl Benzene	100-41-4	1.51	Yes		44,395	11.51	0.04
3.00%		Xylene	1330-20-7	6.44	Yes		44,395	11.51	0.16
		Isophorone	78-59-1	19	Yes		44,395	11.51	0.49
		Propylene glycol mono methyl ether	108-65-6	3.23	No				
		Butoxyethoxyethyl Acetate	124-17-4	4.5	Yes	Glycol Ether	44,395	11.51	0.11
		Butyrolactone	96-48-0	1.18	No				
Total									0.80

Finishing	Kynar-Color	Naphthalene	91-20-3	2.2	Yes		29,597	9.35	0.03
2.00%		Xylene	1330-20-7	1.6	Yes		29,597	9.35	0.02
		Formaldehyde	50-00-0	0.4	Yes		29,597	9.35	0.01
		Ethylene Glycol Butyl Ether	111-76-2	11.6	Yes	Glycol Ether	29,597	9.35	0.16
		Ethanol, 2-Propoxy-	2807-30-9	1.8	Yes	Glycol Ether	29,597	9.35	0.02
		2-Ethylhexanol	104-76-7	1.5	No				
		Diethylene Glycol Butyl Ether Acetate	124-17-4	2.5	Yes	Glycol Ether	29,597	9.35	0.03
		Solvent Naphtha	64742-94-5	19.7	No				
		Solvent Naphtha, Light	64742-94-6	1.4	No				
		n-Butyl Acetate	123-86-4	1.1	No				
		1-Butanol	71-36-3	3	No				
Total									0.28
Total All Lines =									14.68

Individual HAPs		
1,2,4-Trimethylbenzene	95-63-6	4.56
ethylbenzene	100-41-4	0.48
Xylene	1330-20-7	1.88
Naphthalene	91-20-3	0.92
Glycol Ethers	na	6.36
Formaldehyde	50-00-0	0.01
Isophorone	78-59-1	0.49

Appendix A: Emissions Calculations**Natural Gas Combustion Only****MM BTU/HR <100****Two 22 MMBtu/hr Curing ovens and one 44 MMBtu/hr Thermal Oxidizer****Company Name:** Steel Dynamics, Inc.**Address City IN Zip:** 4500 County Road 59, Butler, IN 46721**CP:** 033-15836**Plt ID:** 033-00043**Reviewer:** GS**Date:** July 24, 2002Heat Input Capacity
MMBtu/hrPotential Throughput
MMCF/yr

88.0

770.9

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	1.9	7.6	0.6	100.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.7	2.9	0.2	38.5	2.12	32.4
Controlled Emission in tons/yr (Control Efficiency)	0.7	2.9	0.2	38.5	1.07 (99%)	16.35 (99%)

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Curing ovens are controlled for VOC and CO.**Methodology**

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

HAPs emissions from the combustion of Natural gas are minimal.

Appendix A: Emissions Calculations
Emissions summary for coil coating line

Company Name: Steel Dynamics, Inc.
Address City IN Zip: 4500 County Road 59, Butler, IN 46721
CP: 033-15836
Pit ID: 033-00043
Reviewer: GS
Date: July 24, 2002

Summary	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Uncontrolled						
Potential Emission in tons/yr	0.7	2.9	0.2	38.5	3896.2	32.4

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.

Summary	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Controlled						
Potential Emission in tons/yr	0.7	2.9	0.2	38.5	40.0	16.4

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.